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DISEASES OF THE CHEST

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MISSISSIPPI VALLEY STATES ISSUE

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INTRODUCTION

IN CONFORMITY with a policy which was started at the inception of this journal, one issue of *Diseases of the Chest,* is devoted each year, to the presentation of a picture of sanatorium facilities, of the advances made in tuberculosis control in one state or in a group of states in this country.

In 1935, the August issue of *Diseases of the Chest* was dedicated to the State of New Mexico. In 1936, the May issue of *Diseases of the Chest* was dedicated to the State of Missouri. In 1937, the June issue of *Diseases of the Chest* was dedicated to the States of North Carolina, South Carolina, Virginia, Georgia, and Florida; and it was known as the *South Atlantic States Issue.* In 1938, the June issue of *Diseases of the Chest* was dedicated to the States of California, Oregon, and Washington; and the issue was known as the *Pacific Coast States Issue.*

This year it is our privilege and pleasure to dedicate this issue of *Diseases of the Chest* to the states of Illinois, Indiana, Iowa, and Wisconsin; and the issue is to be known as the *Mississippi Valley States Issue.*

Each of the states represented in this issue of the journal has contributed one or more scientific papers, dealing with subjects related to chest diseases, and written by physicians who are closely identified with the treatment of chest diseases in those states.

Each of these states has presented a picture through the printed word and by illustration, showing the present facilities for the treatment of the tuberculous within those states.

This issue of the Journal also carries the pictures and the biographies of physicians in the States of Illinois, Indiana, Iowa, and Wisconsin; who have pioneered in tuberculosis work in their respective states. We pay tribute to these pioneers of medicine, and only regret that we do not have the space available to include the biographies of many more of the eminent physicians who have been pioneers in this great cause.

It is the purpose of the Editorial Board of *Diseases of the Chest,* to eventually compile similar issues for each of the forty eight states and the District of Columbia; either through the publishing of the data from single states or in groups of states, as was done in this instance. With the publication of this issue, fourteen of the forty eight states will have been completed.

The Editorial Board of *Diseases of the Chest,* expresses its appreciation to the Committees under whose direction this issue of *Diseases of the Chest* was compiled, and also to the officials of sanatoria, tuberculosis societies, and to all of the other individuals and agencies that cooperated to make this issue of *Diseases of the Chest possible.*

F. W. B.

GENERAL CHAIRMAN

BENJAMIN GOLDBERG, M.D.

CHICAGO, ILLINOIS

First Vice-President, American College of Chest Physicians; General Chairman, Mississippi Valley States Issue.

DOCTOR Benjamin Goldberg, born on June 28, 1893, has had one of the most eventful lives in the history of tuberculosis control. He is Associate Professor of Medicine at the University of Illinois, College of Medicine, Honorary Professor of Medicine to the faculty of the National University of Mexico, author of *Procedures in Tuberculosis Control*, 1933, and editor and collaborator to *Goldberg's Clinical Tuberculosis*, now appearing in its second edition, which is the standard text and reference book in this specialty.

He is a Fellow of the American College of Physicians, a Fellow of the American Public Health Association, the American Medical Association, licentiate by the American Board of Internal Medicine, Fellow of the American College of Chest Physicians, First vice-president for the past two years, chairman of the committee for the Advancement of Tuberculosis in that organization, a member of the National Tuberculosis Association, The International League against Tuberculosis, The American Heart Association, The American Sanatorium Association, The Institute of Medicine of Chicago, and the Illinois State and Chicago Medical Societies. He was formerly, over a period of fourteen years, a member of the staff of the Municipal Tuberculosis Sanitarium of Chicago, holding at different times the offices of Chief of Staff, Medical Director and Secretary, and member of the Board of Trustees of that organization. For three years he was chairman of the committee on Public Health and Housing of the City Club of Chicago and received the Rosenthal Gold Medal in 1928 for outstanding civic service to Chicago.

His biography first appeared in *Who's Who in America* at the age of thirty-three years.

It was in the year of 1910 that he first learned that he had an active tuberculosis. His interest immediately became focused on that disease. And after spending about a year in two tuberculosis institutions, where he did the laboratory work and some clinical work, he began to make observations as to the needs of tuberculous individuals from a clinical viewpoint.

He returned to Chicago and in 1912 was associate director of a comprehensive tuberculosis exhibit which, in a period of eight months, was shown in 20 public municipal auditoriums and viewed by some 350,000 people. At large meetings held every afternoon and evening, he detailed to the audiences of this exhibit, that information which would create proper sentiment for the care of the tuberculous, both in Chicago and other communities. In preparing for this he necessarily studied all of the institutions in and about Chicago and their functions and laid the groundwork for his later programs.

In the latter part of 1912 and the summer of 1913 he acted as resident medical officer at the Valmora Sanatorium in New Mexico. In 1916 he served a period of five months as resident physician at the J. C. R. S. Sanatorium in Denver and returned to a place on the resident staff of the Cook County Hospital. After a Civil Service examination, he became a member of the full time dispensary staff of the Municipal Tuberculosis Sanitarium of Chicago, in 1917, and immediately began to utilize his native ability in organization and administration. The stepping up of the efficiency of the various dispensaries was started and he spent several years rotating from one dispensary to another to build up this efficiency.

In 1919 as chairman of a committee appointed by the Health Commissioner of Chicago, he wrote the Open Case Law in Tuberculosis and proceeded to demonstrate that its forcible hospitalization provisions could be enforced.

In 1927 he was appointed secretary and one of the three Trustees of the City of Chicago Municipal Tuberculosis Sanitarium and its director. He immediately put into effect innovations that placed that organization in a pre-eminent position throughout the world. He placed the Sanitarium on the basis of operation of a specialized general hospital with a reorganization not only of the medical, nursing, and dietetic services, but also of the type of such service rendered to the patients in that institution. The attending staff was recruited from the profes-

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DISEASES OF THE CHEST

MISSISSIPPI VALLEY STATES ISSUE
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ILLINOIS SECTION

EDITORIAL COMMITTEE:

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History of the Illinois Tuberculosis Association

THE ILLINOIS Tuberculosis Association had its beginning in 1903, following the reading of a paper on consumption by Dr. J. W. Pettit of Ottawa, Illinois, before the Illinois State Medical Society. He was then appointed by the society to the chairmanship of a committee on tuberculosis with power to carry out any plans which seemed practical and advisable to combat the disease in Illinois.

Backed by this interest of the State Medical Society and stimulated by the fact that the National Tuberculosis Association had just been organized in New York, Dr. Pettit sent out letters on December 6, 1904 calling a meeting for the purpose of organizing an Illinois Tuberculosis Association. The meeting convened at the Great Northern Hotel, Chicago, on December 14, 1904. Seventeen persons attended, including representatives of the State Board of Health, State Board of Charities, Chicago Medical Society and the Chicago Visiting Nurses' Association. At a preliminary meeting of the conference, a Committee on Organizations was appointed to prepare the necessary constitution and by-laws for the new organization. This Committee on Organizations consisted of Dr. Wm. E. Quine, Dean and Professor, College of Physicians and Surgeons, also president of State Medical Society; Dr. J. W. Pettit, Chairman of the Tuberculosis Committee, Illinois State Medical Society, also founder of Ottawa Tent Colony; Dr. C. L. Mix, Professor, Northwestern University Medical School; Dr. George W. Webster, President, State Board of Health; Dr. N. S. Davis, Dean and Professor of Medicine, Northwestern University Medical School; Dr. Frank Billings, Dean and Professor, Rush Medical College; Dr. W. A. Evans, Secretary, Tuberculosis Committee, Visiting Nurses' Association, Chicago; Dr. Arnold C. Klebs, Medical Director, Tuberculosis Committee, Visiting Nurses' Association; Dr. Robert H. Babcock, Professor, College of Physicians and Surgeons; Dr. Ludwig Hektoen, Professor of Pathology, Rush Medical College; Dr. N. A. Groves, Secretary and Professor of Bennett College of Eclectic Medicine; Dr. N. B. Delamater, Professor, Chicago Homeopathic College; E. P. Bucknell, Superintendent, Chicago Bureau of Charities; Sherman C. Kingsley, Superintendent, Chicago Relief and Aid Society; Mrs. Ellen M. Frake, President, Illinois Federation of Women's Clubs.

On December 16, 1904, there was a meeting of the Committee on Organizations held at the Union Hotel. A report was made on the constitution and by-laws and was adopted by the group. Thus the Illinois Association for the Prevention of Tuberculosis was founded.

At the first annual meeting, January 19, 1905, held in the Public Library Building in Chicago, they adopted the report of the constitutional committee and permanent officers were elected as follows: President, Edmund J. James, president University of Illinois, Champaign; First vice-president, Right Rev. John L. Spalding, Bishop, Peoria; Second vice-president, Frank O. Lowden; Secretary, Dr. A. C. Klebs; Treasurer, James H. Eckels, President, Commercial National Bank; Legal adviser, Charles H. Hamill.

The objects of the association as founded were: First, formation of local committees to carry on health education. Second, to concentrate on legislation, looking toward the establishment of tuberculosis sanatoria. Third, to cooperate with the National Tuberculosis Association for study and research, in the prevention of tuberculosis.

Affiliation with the following organizations was effected on November 9, 1910: Chicago Tuberculosis Institute, Lake County Tuberculosis Institute, Peoria Association, Jewish Consumptive Relief Society, Jacksonville Society for the Prevention of Tuberculosis, Springfield Society for the Prevention of Tuberculosis, Rock Island Society for the Prevention of Tuberculosis.

In September, 1914, the "Bulletin" of the Illinois Association for the Prevention of Tuberculosis was first published. Later on, the name was changed to "Breeze". And still later, a periodical publication called, "The Illinois Arrow". In this year the Modern Health Crusade was launched in the schools throughout the state and, also, in this year, for the first time, the Association cooperated with the State Department of Health in presenting an exhibit at the State Fair. This practice has continued to date.

On February 7, 1915, at an Executive Committee meeting, there was considerable discussion regarding tuberculin testing of cattle and it was agreed that the State Association would sponsor and endorse such a program.

On November 9, 1916, the eighth annual meeting was held in Springfield. At this time, attention was called to the successful tax campaign which had been carried on, and the fact that eight counties had passed the new Sanatorium Tax Law. It was decided to concentrate on it to a much greater degree for 1918 and to put on a really big campaign.

HISTORY

Of the Tuberculosis Institute of Cook County and Chicago

1894—For more than half a century our interest has been focused on tuberculosis. In 1894 a separate tuberculosis pavilion was built at the County Poor House at Dunning with a capacity of 75 beds. Previous to the erection of this building there was no separation of the tuberculous inmates from the general population at the institution.

1898—A larger building was erected at Dunning which provided accommodations for 275 advanced cases of tuberculosis. This institution cared for 11,964 patients during its fifteen years of existence. In 1914 all patients housed at this institution were transferred to the new tuberculosis hospital at Oak Forest.

1899—The State Board of Health was directed by a joint resolution of the Senate and the House of the 41st General Assembly to investigate the advisability of establishing a state sanatorium for consumptives in Illinois. An exhaustive investigation was made and a lengthy report was presented to the governor in December 1900 recommending the establishment of the state sanatorium. This was urged by Governors Tanner and Yates respectively in their bi-ennial messages to the General Assembly. The legislators were not ready to give support to this measure. The Act calling for an appropriation of $200,000 did not pass. Bills introduced in 1907, 1909, 1911 and 1913 failed to receive the necessary number of votes.

1900—In 1900 we find the Children's Memorial Hospital and the Hospital for Crippled Children accepting in their institution children suffering from tuberculosis of the bone, Dunning with its 275 beds for advanced cases and the County Home for Incurables with 68 beds for terminal cases providing all the facilities available for tuberculosis, but with the turn of the century people were beginning to realize the seriousness of the situation and the need for an energetic campaign for the control of tuberculosis. Heretofore the public assumed that fatalistic and indifferent attitude.

A charter was taken out by the Illinois Society for the Prevention of Tuberculosis. No other work was accomplished by the Society beyond the organization incorporation. The charter was allowed to lapse.

Dr. Sachs, in charge of the general medical clinic of the Jewish Aid Dispensary located at 1336 S. Morgan Street, began recording and separating the large number of tuberculosis cases reporting at the clinic.

1902—As the result of the separation of the cases of tuberculosis from the general medical clinic, Dr. Sachs in May 1902 began to undertake a house-to-house survey with the cooperation of Miss Bertha Hazard of Hull House Settlement, of an area comprising 8 acres with a population of 1,086 people. In this area 54 cases of tuberculosis were found, and deplorable living conditions due to bad housing were in evidence. This survey was responsible for a more extensive one covering two-thirds of a square mile which was made by Dr. Sachs and revealed 1,016 cases of active tuberculosis. The surveys received an award of honorable mention at the International Tuberculosis Congress held in Washington in 1908.

At the November meeting of the Visiting Nurses Association Miss Harriet Fulmer, Superintendent of Nurses, asked the Board to take up the matter of caring for tuberculosis, informing them about the crusade already started in New York City. Much interest was aroused. A committee was appointed to arrange for a meeting in January of physicians, civic organizations, churches and other interested groups.

1903—At the February meeting, the Visiting Nurse Association voted $2,000 to the Tuberculosis Committee to begin its work under their auspices and an office in the Unity Building adjoining the Visiting Nurses Association was secured for the Committee which continued to function as a Committee of the Visiting Nurses Association until 1905.

This Committee also opened in 1905 the first camp for outdoor treatment of tuberculosis, on the grounds owned by Gads Hill Settlement at Glencoe. Fifteen patients were admitted to the camp which remained open until near the close of the year. At this time we note frequent mention of the following persons as being interested in the tuberculosis program being developed in Chicago: John T. Pirie, Jr., Dr. John A. Robison, Dr. Favill, Dr. Charles L. Mix, Dr. Arnold Klebs, Ernest Bicknell, Dr. Gray, Sherman Kingsley, Dr. N. S. Davis, Prof. E. O. Jordan, Mr. William Kent, Dr. Frank Billings, Mrs. Bryan Lathrop, Dr. Hektoen, Mrs. Arthur T. Aldis, Dr. R. H. Babcock, Dr. Edwin W. Ryerson, Mrs. Edward Gaylord, Dr. Alice Hamilton, Mr. David R. Forgan.

1903-4-5—During the years 1903, 1904 and 1905 this group sponsored an educational campaign by arranging for public lectures, exhibits, preparation and distribution of health literature.

1905—In 1905 The Institute and the Illinois State Association brought to Chicago the exhibit collected by the National Tuberculosis Association. This exhibit constituted a very comprehensive showing of what was being done for the control of tuberculosis in the United States. The municipal museum of the Chicago library was loaned for this occasion which created much interest and drew many people from the city and surrounding country.

The program of work was approved by the Chicago Medical Society and the Physicians' Club of Chicago. The Chicago Bureau of Charities, through its Superintendent, Mr. Ernest Bicknell, donated the use of their district offices as headquarters for clinic physicians in different districts. At this time the tuberculosis mortality was 192 per 100,000. Three years of exhaustive work convinced the Committee that the tuberculosis problem required the undivided attention of a group directing all its energies to the curbing of this devastating disease. Thus in 1906 the Chicago Tuberculosis Institute was organized with Dr. Frank Billings as its first President. Dr R. H. Babcock as First Vice-President, Mrs. E. L. Gaylord, Second Vice-President, Ernest P. Bicknell as Secretary and James H. Eckels as Treasurer, with Percy W. Davis as the first paid Executive Secretary of the organization.

In 1903 St. Anne's Hospital was opened and provided 50 beds for the treatment of tuberculosis. This institution functioned as a tuberculosis hospital until 1907, when it became a general hospital.

In 1905 Dr. Sachs, assisted by Dr. Max Biesenthal, opened the first tuberculosis clinic at the Jewish Aid Dispensary, although Dr. Sachs, as previously stated, since 1900 had been recording

and separating all cases of tuberculosis reporting to the clinic.

1906—On July 14, 1906, Mrs. Lenora A. Hamlin was appointed superintendent of the Chicago Tuberculosis Institute to succeed Percy W. Davis.

In September 1906, four portable cottages were erected on the grounds of the Dunning institution for tuberculous patients. This represents the second temporary housing arrangement for early cases and was known as Camp Norwood. This was one of the chief activities of the newly organized Tuberculosis Institute. This camp was able in seven months of its existence to demonstrate that tuberculosis could be successfully treated in Chicago. The establishment of this camp was made possible through an act of the Board of County Commissioners permitting the use of the county grounds. The camp remained open until March 31, 1907.

1907—Assisted by a few physicians who volunteered their services, the Chicago Tuberculosis Institute opened seven dispensaries within the first two years of its existence, in the quarters donated by churches, charities, hospitals, and settlement houses. The first one of these dispensaries to be opened on May 15, 1907 was at 34 Vedder Street. On December 13, 1907 this dispensary was transferred to Poli-clinic.

This was followed by one at Central Free on November 16, 1907; November 21, Northwestern University Medical School; December 9, at Hahnemann Hospital; December 13, at Poli-clinic and December 17, at the West Side College of Physicians and Surgeons; and May 1, 1908 the Stock Yards Dispensary was opened, in addition to the clinic at the Jewish Aid Society which had been in operation since 1900. At each dispensary a nurse in the employ of the Institute assisted the physician during the clinic hours, spending the remainder of her time visiting and instructing patients in their homes.

The Edward Sanatorium at Naperville was founded by Mrs. Eudora Hull Spalding of Chicago (Mrs. Edward Gaylord). The corner stone was laid in the spring of 1906, and on the 15th of January, 1907 the doors of the institution were opened to receive fourteen patients. Dr. Theodore B. Sachs was in charge of the institution which was supported entirely by Mrs. Spalding until it was offered as a gift to the Chicago Tuberculosis Institute. On May 27, 1907, this institution became the property of the Institute.

This story of the beginning of the tuberculosis movement would not be complete if we did not include mention of a few of our pioneers: Dr. John Ritter, Dr. McMichael, Dr. Robert Hayes, Dr. A. M. Harvey, Dr. Clarence Wheaton, Dr. Max Biesenthal, Dr. Frederick Tice.

During 1907 the Institute joined the Health Commissioner, Dr. W. A. Evans, in a request to all hospitals in the city to care for consumptives.

Later we find Wesley Hospital setting aside a number of beds exclusively for tuberculous cases requiring treatment for other conditions.

The Tuberculosis Department of the Cook County Hospital opened in May with 40 beds for advanced cases. It was enlarged in 1908 to accommodate 300 patients. Dr. William A. Evans, who was Health Commissioner from 1907 to 1911 deserves the credit for making, for the first time, tuberculosis a reportable disease. Chicago was awarded in 1907 a silver medal by the International Congress on Tuberculosis for tuberculosis control measures then in force.

About this time a number of Jewish women interested in the tuberculosis problem organized the Jewish Consumptive Relief Association. In addition to providing milk, clothing, sleeping quarters, etc., for patients attending the Jewish Aid Dispensary, this group of women paid for the care of patients in institutions wherever vacancies could be found.

1908—In 1908, the First Christmas Seal Sale was held.

In 1908 the Jewish Consumptive Relief Society together with the Baron Hirsch Woman's Club, worked to bring about the Winfield Tuberculosis Sanitarium. Mr. Charles A. Stonehill donated a site at Winfield on which there was one small building. Additions were made and February 11, 1909 Winfield Sanitarium opened with six patients. Dr. Theodore B. Sachs was the physician in charge, with Dr. Max Biesenthal, the present Medical Director, assisting with the medical care of patients. Dr. Biesenthal was made Medical Director in 1912. The institution now has accommodations for 76 adult patients; and 32 beds in a special building for a vacation project for children.

Dr. William A. Evans also was responsible for another important measure. July, 1908, an ordinance was passed by the City Council requiring all milk to be pasteurized.

The Institute supported a $2,000,000 bond issue for the Oak Forest institution which was approved. This institution opened in 1912 with accommodations for 634 patients, which included two cottages for children.

Dr. Ethan Allen Gray, a Director of the Institute, observed the great number of advanced cases applying at the dispensaries, and there were not sufficient facilities for caring for them. Dr. Gray interested a group of influential men and women in providing a hospital for advanced cases able to pay for their care and treatment. This resulted in the opening of the Fresh Air Hospital in 1908 with a capacity of 100 beds. Among those who contributed toward this new service in the community were Mr. and Mrs. James Patten, Mr. Samuel Insull and others.

With case-finding machinery in operation, the number of known cases of tuberculosis increased. A considerable number of beds for advanced cases had been brought about through interested groups of people, but the urgent task now confronting the leaders of the tuberculosis movement was adequate sanatorium beds for the early and curable cases unable to pay for that care. A campaign of publicity was immediately put in operation to aim to inform the voting public concerning the ravages of tuberculosis and to secure their support of a sanatorium bill known as the Glackin Act, which was introduced in the Illinois legislature in January 1908, by Senator Glackin. This Act gave to residents of cities or villages in Illinois the right to determine by referendum vote as to whether a fixed annual tax should be assessed, the proceeds to be used in the prevention and treatment of tuberculosis.

1909—The Act in its final form was adopted for the City of Chicago on April 6, 1909 by a large majority vote, being 81 per cent of the total vote cast. The Mayor with the approval of the City Council was to appoint a Board of three Directors who would be entirely responsible for the policies and conduct of the Sanitarium. The three Directors appointed by Mayor Busse for the management of this fund were Harlow N. Higginbotham, President, Dr. Theodore B. Sachs, Secretary, and Dr. W. A. Evans.

At a meeting of the Executive Committee of the Institute a report was presented on the final arrangements between the Board of Education and the Institute for the opening and maintenance of Chicago's first outdoor school for tuberculous children on the grounds of the Harvard School at 75th Street and Vincennes Road. Mr.

William E. Watt, Principal of the Graham School served as Principal of the outdoor school. This school was opened on August 3, 1909, and 30 children were in attendance, and closed on September 2, the Board of Education supplying the building, grounds, equipment and teaching services, and the Chicago Tuberculosis Institute provided the food, transportation, medical services, nursing care and selected the pupils, contributing $2,000 to the experiment.

The name of Dr. James A. Britton is well known in connection with his work with the open air schools. To him more than to any other one person is due the credit for the conduct and success of the open air school movement. Other names that should be mentioned in this connection are Dr. George Albert Gardner, and Stephen R. Pietrowicz. This program in summer outdoor schools was carried on from 1909 to 1912.

1910—The first tax for one-half mill for every dollar valuation of taxable property in Chicago was levied in 1910. This was followed by the purchase of 160 acre sanitarium site at the far northwest boundary of the city as the law stated that the sanitarium must be within the city limits.

In 1910 the Institute voted to turn its dispensary system over to the Municipal Tuberculosis Sanitarium management. This offer was accepted by the Board as of September 10, 1910 and included the nurses and employees of the Institute. Miss Edna L. Foley was the superintendent of nurses and Mr. Frank E. Wing was released as the Superintendent of the Institute to become General Superintendent of the Municipal Tuberculosis Sanitarium.

The Institute played an important part in the organization of the Anti-Spitting League in 1910. The results of this crusade, carried on by 20 organizations, were remarkable as shown by the following results: Three forms of legend were printed on the backs of 100 million street car transfers by which at least 30 million passengers were reached monthly. Mr. Hamilton of the Chicago City Railways Company and Mr. Livingstone of the Chicago Railway Company reported that spitting in the cars and on the platforms had been reduced at least 60 per cent.

1911—In March 1911, Dr. Sachs was appointed Chairman of the Committee on Plans, and the machinery for the building of a Sanitarium was immediately put into operation.

In 1911, the Institute contributed $5,000 for the opening of three more open air schools.

July 31, 1911; the Committee on Factories was organized by the Chicago Tuberculosis Institute. The Motto of the campaign was "A higher standard of health means greater efficiency." The work of this Committee was responsible for the development of plans for examination of employees which were adopted in the offices and shops of the International Harvester Company, Montgomery Ward & Co., Chicago Telephone Co., and Swift & Co.

In connection with the work of this Committee the following names of physicians having a part in the work stand out prominently: Dr. Harry E. Mock, Dr. James A. Britton, Dr. William B. Fisk, Dr. Frank Wieland, Dr. W. H. Lipman, Dr. A. M. Harvey, Dr. Theodore B. Sachs.

1912—In March of this year, the Chicago Tuberculosis Institute sponsored a comprehensive tuberculosis exhibit. This exhibit was shown in 20 park field houses and 20 schools, being viewed by 358,025 people. One hundred and eighty-one programs for school children were given as well as 43 in foreign languages. Of interest also was the organization of neighborhood committees which were formed to sponsor the programs and to aid in stimulating local interest. In connection with this exhibit we should mention the names of Dr. Benjamin Goldberg and Arthur Strawson, formerly with the CTI, later Field Secretary of the National Tuberculosis Association and now Executive Secretary of the Massachusetts Tuberculosis Association.

1913—February 11, 1913 was the first meeting of the Robert Koch Society for the Study of Tuberculosis. This organization was chartered January 15, 1915 and was organized to fill an important need for a medical organization to be devoted exclusively to the study of tuberculosis. It bears the distinction of being the first one of its kind organized in this country. Later when the Chicago Tuberculosis Society, a branch of the Chicago Medical Society, was organized, the Robert Koch Society discontinued its meetings.

A. A. McCormick, President, Cook County Board of Commissioners appointed on October 12, 1913 an Advisory Committee for Cook County Tuberculosis Hospitals with Dr. Sachs, Chairman, Dr. Gray, Dr. Pietrowicz, and Mr. Minnick, Supt. of the Institute, as members of this Committee. A detailed investigation of the administrative, medical, nursing and dietary regime in those institutions was made and recommendations made to the President of the County Board with the result that radical improvements were made.

1915—On February 16, 1915, the Municipal Tuberculosis Sanitarium was dedicated and on March 9, 1915 the institution opened its doors for the admission of patients, with a capacity of 650 beds on its day of opening.

The Otto Young Pavilion, Department of the Chicago Home for Incurables opened in 1904, had a capacity of 68 beds in 1915, available for tuberculosis.

1916—In 1916 the Municipal Tuberculosis Sanitarium made a house-to-house survey of 8 square miles in the congested district of Chicago. This survey indicated that many cases of tuberculosis had escaped supervision and as a result the then existing organization was changed from a part-time dispensary plan to a full-time dispensary plan. Dr. John Dill Robertson, who was Health Commissioner in Chicago at that time, was responsible for this change as well as for the ruling being enforced that no child under 16 years of age was to remain in contact with an open case of tuberculosis. As Health Commissioner Dr. Robertson could enforce this ruling. On January 1, 1933 this rule was incorporated into the State Rules and Regulations for the Control of Tuberculosis.

1917—In 1917, through the cooperation of the various philanthropic organizations in Oak Park, especially the Associated Charities, the Chicago Tuberculosis Institute opened its first permanent Dispensary in Cook County, known as the Oak Park Health Center. The Health Center was also used by the Red Cross for its war work.

1917-18-19—During a part of 1916, 1917, and 1918, the Institute cooperated with the Public Health Division of the County Bureau of Social Service and launched a program of tuberculosis exhibits and public health lectures in the towns in Cook County outside of Chicago. Mr. James A. Phillips was in charge. Mr. Phillips was sent to Cleveland to study the automobile clinic established by the Health Department in Cleveland and see if such service would be practical in Cook County. A specially constructed automobile for clinic purposes was put in service May 29, 1919.

(Due to the lack of space in this issue, this article will be completed in the November issue of the Journal.)

TUBERCULOSIS PIONEERS IN ILLINOIS

THEODORE B. SACHS, M.D.
1868 - 1916

THEODORE B. SACHS, tuberculosis pioneer, physician, lawyer, and martyr, was born in Dinaberg, Russia in May, 1868 and received the degree of Doctorate of Law from the Imperial New Russian University of Odessa in 1891, which was the year he came to the United States.

He spent the next several years as a student at the College of Physicians and Surgeons of the University of Illinois, where he graduated in 1895 and became an intern at Michael Reese Hospital. His interest in the poor, and his natural tendencies to study caused him to associate with the Jewish Free Dispensary. In 1900, beginning to realize that something should be done to study the large number of tuberculous coming to his clinic in that Dispensary, he began the segregation of tuberculous patients. In 1905, because of the evident need, he established the first clinic for tuberculous individuals in Chicago, which he personally conducted at the Jewish Free Dispensary.

He became attending physician at the Cook County Hospital on January 2, 1903, where his interests were again largely centered about tuberculosis.

The Visiting Nurses' Association of Chicago established the Gads Hill Camp for Tuberculosis at Glencoe, Illinois in 1905, at his instance and under his direction.

Mrs. Keith Spalding, a member of the Board of the Visiting Nurses' Association, was thus stimulated to found the Edward Sanatorium in 1907, and he became its medical director and continued so until he died.

He was one of the group who were instrumental in founding the Chicago Tuberculosis Institute, organized May 1, 1906, and was its president from January 29, 1913 until April 2, 1916. His keen vision into the needs of the tuberculous was, by this time, very definitely established and he began to appreciate that tuberculosis was too great a problem to be limited by the resources of a few private organizations.

Largely through his stimulation, the Chicago

(Continued to page 26)

JAMES WILEY PETTIT, M.D.
1848 - 1926

DOCTOR James Wiley Pettit established, under the auspices of the Illinois State Medical Society, the Ottawa Tuberculosis Sanatorium at Ottawa, Illinois, in 1904.

It was the first tuberculosis sanatorium to be established between the Rocky and Allegheny mountains, and the first in the United States, if not in the entire world, to ignore climate as a necessary adjunct to the treatment of tuberculosis.

Dr. Pettit was born in Sparta, Illinois, in 1848—a direct descendent of the earliest white settlers of Illinois—his mother's people having located in Illinois in 1783 and his father's forbearers in 1798.

At the age of 25, in 1873, Dr. Pettit graduated from the Louisville Medical College and followed this, in 1884, by taking a degree from the Rush Medical College of Chicago.

Dr. Pettit was one of the founders of the National Tuberculosis Association, later serving on its Board of Directors; president of the Illinois State Medical Society in 1909; president of the Illinois Tuberculosis Association from 1922 to 1924; member, and later president, of the Mississippi Valley Sanatorium Association; and president, for ten years, of the Illinois State Charitable Eye and Ear Infirmary at Chicago.

When Doctor Pettit died in 1926, not only the forces for tuberculosis control, but all of organized medicine lost a worker and a leader.

Illinois Sanatoria

MUNICIPAL TUBERCULOSIS SANITARIUM

CHICAGO, ILLINOIS

THE Municipal Tuberculosis Sanitarium is the official tuberculosis agency in Chicago, and is charged with the entire responsibility for the tuberculosis program.

Working under the Glackin Act, the present board of three directors, Dr. Frederick Tice, President; Mr. Harry J. Reynolds, Vice-President; and Dr. Allan J. Hruby, Secretary, operate a 1,205 bed Sanitarium, staffed by 17 doctors and 114 nurses, a North Riverside Branch, with 265 beds, a Dispensary organization of 8 clinics and 2 substations (staffed by 38 doctors and 142 nurses) who supervise 61,300 patients in their own homes, 1,950 undernourished children in the 65 open window rooms in the public schools throughout the city, 1,812 children in the five Crippled Childrens' Schools, and gives dental care through its eight dental clinics to an average of 73,000 children annually.

In addition, the Dispensary system includes a Collapse Therapy Clinic (with a registration of 1,892 patients), located in the downtown district. Thirteen hundred and fifty-eight of the patients are actually under collapse, the remainder are either controls or observation cases being studied with a view to some form of collapse. All types of collapse, with the exception of thoracoplasty, are available in the field clinic. The patients are cared for, from the initial injection onward, and in the majority of instances the entire collapse sequence, thoracoplasty excepted, is carried out in the field.

Ideally, the collapse patient, in the early stages at least, should have a period of sanitarium care. Owing to a shortage of beds in the Chicago area, this is impractical. The problem has been met by a conjoined plan of Sanitarium and field collapse. Patients that do not do well in the field, or patients that need thoracoplasty are sent to the Sanitarium. The Sanitarium, in turn (68.8 per cent of the population under collapse) discharges its established pneumothorax cases, as soon as possible, to the field for refills and follow-up. This close correlation of function accentuates Sanitarium tempo, accelerates turnover, and insures the patient consistent treatment, both in his Sanitarium and outside life.

At the present time, the plan of collapse, inaugurated in 1929 by the board of directors, is being stressed. At the Sanitarium every case on admission is considered from the angle of collapse. In the Dispensary system all plates taken are referred to the Collapse Clinic, and studied for indications. So far the work has been eminently satisfactory. The myth that extramural collapse, from the initial injection onward, is an extremely dangerous procedure has been dissipated. During a seven and one-half year period, from a total of 83,245 inflations, there have been only 28 embolic accidents (1 to every 2,973 inflations), a figure that compares favorably with institutional collapse.

The results of the seven and one-half year period (a study of 8,083 cases) have been compiled, and will be published in a bulletin soon to be released.

Illinois Sanatoria

*Sachs Hall**

EDWARD SANATORIUM

NAPERVILLE, ILLINOIS

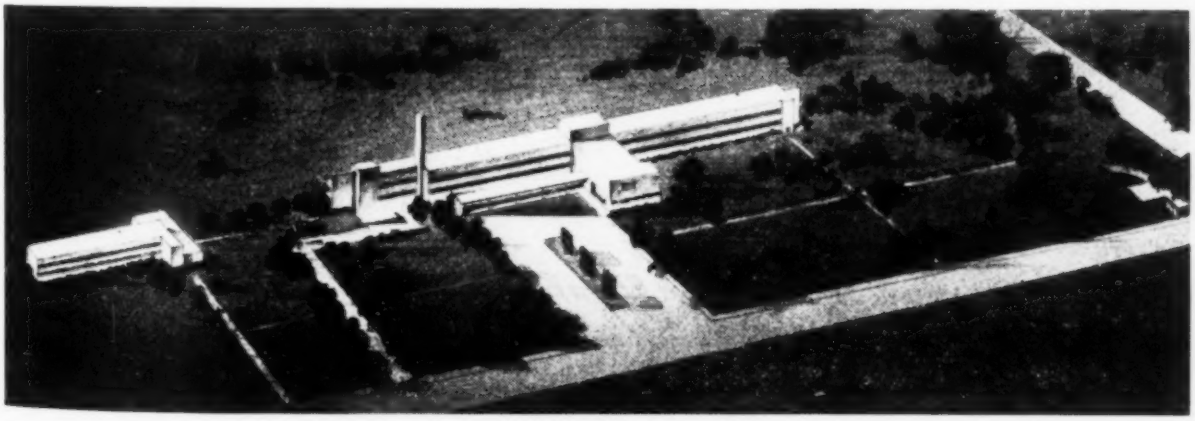
THE above is a picture of one of several buildings at the Edward Sanatorium devoted to the treatment of tuberculosis. The institution is located in DuPage County, thirty miles from Chicago. The thirty acres of ground surrounding the buildings are beautifully landscaped, affording an unobstructed view of picturesque scenery for miles around.

The Sanatorium has accommodations for 97 patients. Its air conditioned operating room, x-ray department and laboratories are equipped with the most modern equipment obtainable. A great deal of attention has been given to providing a homelike atmosphere with the patient's comfort always in mind. Excellent food is served under the supervision of a dietitian.

The medical work is in charge of the following staff of specialists with a resident intern: Jerome R. Head, M.D., Medical Director; Harry Oleck, M.D., Associate Medical Director; L. C. Gatewood, M.D., General medicine and Gastroenterology; Francis Lederer, M.D., Otolaryngology; Hollis E. Potter, M.D., Consultant in Roentgenology; Chas. E. Pope, M.D., Consultant in Proctology.

The rates are from $21.00 to $49.00 per week which includes medical and nursing service, x-rays, pneumothorax, and laboratory fees. For information communicate with the Chicago Office of EDWARD SANATORIUM, 343 S. Dearborn Street, Chicago. Telephone, Wabash 8151.

* A memorial to Dr. Theodore B. Sachs, the first Medical Director.



Lake County Tuberculosis Sanatorium

WAUKEGAN, ILLINOIS

THE Lake County Tuberculosis Sanatorium is located just within the city limits of the City of Waukegan. Construction was started in October 1938, and the institution, with a maximum capacity of 100 beds, will be ready to receive patients on or about September 15, 1939.

The Sanatorium is thoroughly equipped with clinical, laboratory, roentgenological and surgical facilities for the treatment of tuberculosis in all of its forms.

The sanatorium facilities are free to all residents of Lake County, while non-residents may be admitted, when beds are available, on a cost basis.

Charles K. Petter, M.D., F.A.C.S., is Superintendent and Medical Director.

Illinois Sanatoria

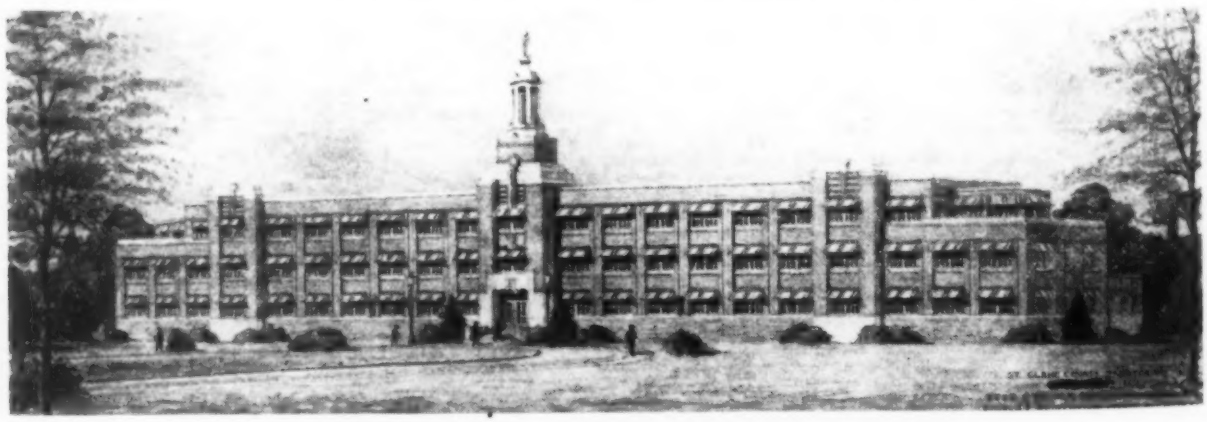
THE PALMER SANATORIUM
SPRINGFIELD, ILLINOIS

THE Palmer Sanatorium was established by Dr. George Thomas Palmer in 1913 and was originally known as the Springfield Open Air Colony. The beginning of this institution was unusual, being a privately owned sanatorium made possible by voluntary contributions. Dr. Palmer had begun the first public tuberculosis work in Springfield in 1911. Also, for ten years, he was president of the Illinois Tuberculosis Association at the time when the movement for the establishment of public sanatoria in the state had its inception. In recognition of Dr. Palmer's public service, a group of prominent Springfield men and women contributed the funds necessary to establish the institution.

The sanatorium occupies a wooded, rolling tract of twenty-five acres in the country club section of the city, so situated as to avail itself of the splendid water supply and other public utilities. The buildings now occupied were constructed in 1925 and are provided with modern facilities for diagnosis and all forms of treatment. The gardens are among the show places of Springfield.

The number of patients is restricted to seventy-five, so that all may have the maximum of medical and nursing service. The education and training of the patient for his convalescence and future life are regarded as being of equal importance to the more technical phases of treatment.

While every form of medical or surgical treatment is employed, the attitude is conservative and operative procedures are undertaken only after reasonable periods of observation and painstaking study of the individual patient. The institution is one of the very few tuberculosis sanatoria in Illinois fully approved by the American College of Surgeons.



ST. CLAIR COUNTY SANATORIUM
(Under Construction)
EAST ST. LOUIS, ILLINOIS

THE voters of St. Clair County (Illinois) authorized the Board of Supervisors, in November 1936, to establish and maintain a tuberculosis sanatorium and to levy a tax of 15 cents on the hundred dollars for a ten year period, which tax was to be in addition to the statuary limit of 25 cents.

After numerous obstacles, court actions and Supreme Court decisions, the plans for the sanatorium have been completed, a site acquired, and bids are now being asked for construction.

The plans call for 105 beds, 15 of which are for colored patients in a separate wing. The main patients' building is three stories and basement and contains office, surgery, x-ray and laboratory, which departments are air conditioned. A separate wing contains dining rooms for patients, nurses, and other sanatorium employees, and kitchens and an office for the housekeeper or dietitian.

A separate building houses nurses and employees—each with separate floors with large living or reception rooms. Another building contains heating equipment and laundry. All buildings are connected by underground tunnels.

The membership of the Sanatorium Board is: Geo. Neiss, President, Belleville, Illinois; Dr. I. L. Foulon, East St. Louis; and G. F. Baltz, Secretary, Millstadt, Illinois.

Illinois Sanatoria

OTTAWA TUBERCULOSIS SANATORIUM

OTTAWA, ILLINOIS

THE OTTAWA Tuberculosis Sanatorium, Ottawa, Illinois, was established thirty-five years ago. It is the pioneer sanatorium of the Middle West, and was the first institution of its kind to be erected between the Rocky and Allegheny Mountains.

The institution was founded by Dr. James W. Pettit who previously had been a victim of the disease. In 1900, Doctor Pettit attended a meeting of the International Medical Congress in Rome, Italy, and was impressed by the divergency of opinion regarding the treatment of tuberculosis, particularly that phase pertaining to climate.

To confirm his opinion that climate was not an essential in the treatment of tuberculosis, he again went to Europe in 1902 to make a personal investigation of tuberculosis sanatoria, and learned that all of them were located with reference to some particular climate—some in the Swiss Alps to secure the presumed advantage of the altitude and cold; others on the Mediterranean to have the benefit of warm, equitable climate at sea level.

Thoroughly convinced that tuberculosis could be successfully treated in any climate, and having the courage of his convictions, he established The Ottawa Tuberculosis Sanatorium under the auspices of the Illinois Medical Society, July 1, 1904. It was the first institution in the United States, if not in the world, to completely ignore climate and be located in a so-called unfavorable climate.

The institution has operated continuously since its inception, and is today one of the largest private institutions in the Middle West affording every modern means for the diagnosis and treatment of tuberculosis.

Resident Staff: Dr. Royal W. Dunham, Medical Director; Dr. Robert G. Bell, Associate Medical Director; Mrs. Ollie M. Dunham, General Superintendent; Dr. Vito Vighi, Assistant Physician; Miss Helen J. Voltmer, R.N., Superintendent of Nurses.

Consulting Staff: Dr. Willard Van Hazel, Chest Surgery; Dr. John H. Edgcomb, General Surgery; Dr. Frederick Tice, Internal Medicine; Dr. George P. Guibor, Eye, Ear, Nose and Throat; Dr. G. A. Karr, Dentistry.

ST. JOHNS SANITARIUM

SPRINGFIELD, ILLINOIS

ST. JOHNS SANITARIUM, located a few miles northeast of Springfield, Illinois, on a beautiful tract of rolling timber land, was established in 1919, by the Hospital Sisters of St. Francis, for the care of tuberculous patients and, a few years later, an Orthopedic Hospital, in a separate building, was added.

The unit caring for TUBERCULOUS PATIENTS has two hundred and twenty-five beds, a well organized medical staff, and consultants in all specialties. This unit is well equipped with all facilities for the medical and surgical care of the patients, and tuberculosis in all forms is accepted.

THE ORTHOPEDIC UNIT has one hundred beds, a full medical, surgical, and physiotherapy staff and every facility for the care of orthopedic cases, and will accept any crippled child under eighteen years of age where definite improvement or recovery can be expected to result from surgery or other treatment (no children accepted for custodial care).

St. Johns Sanitarium, including the unit for the care of tuberculous patients and the unit for the care of crippled children, is conducted by the Hospital Sisters of St. Francis, who give their service to this work, making the rates very low for the service the patients receive. This organization of Sisters also operates twelve other hospitals in the United States and one in China. At St. Johns Sanitarium, the personnel is highly trained and the management is efficient.

A doctor's statement of the condition of a patient is required before admission. The patient is notified as soon as he can be suitably placed. Dr. Robert K. Campbell is Medical Director, and Sister Ulrika, R.N., is Superintendent. Address correspondence, concerning rates and admission to the sanitarium, to Sister Ulrika, Superintendent.

Illinois Sanatoria

Rockford Municipal Tuberculosis Sanatorium

ROCKFORD, ILLINOIS

THIS sanatorium, a municipal institution of 120 beds, is located on Parkview Avenue within the city limits of Rockford, approximately three miles from the center of the business district.

The State of Illinois passed a law in March, 1908, permitting municipalities and counties to build sanatoriums by taxing the people of the county or municipality, after a proper vote had been taken. This law is known as the "Glackin Act". On February 19, 1912, a petition signed by 100 people was presented to the City Council asking that the question of building a sanatorium be put on the ballot at the next annual election. On April 15, 1913 the people of this city voted for a levy by a majority of 5511 to 2009. As per law, the Mayor appointed three members as a Board of Directors, and after the proper location was selected, a small sanatorium of about 20 beds was erected. It was January 1, 1916 when the first patient was admitted.

Since that time the institution has grown from a small beginning to its present capacity. The latest and most modern building is a three story building in which are housed the administrative, diagnostic and surgical units; also in this building are private rooms for those patients requiring more specialized care. There are five separate wards for ambulatory patients. Children suffering with first infection type of disease are not usually admitted to the sanatorium, but are admitted with reinfection type of disease. Tuberculosis of all kinds may be admitted for treatment at this institution.

This institution maintains an active out-patient department for diagnosis and therapy.

All beds in this institution are free beds and any patient living in Winnebago County may be admitted free of charge. Patients who live outside of Rockford in Winnebago County are admitted and paid for by the County. Admission is obtained by applying to the Superintendent and Medical Director, W. J. Bryan, M.D.

OAK KNOLL SANATORIUM

Tazewell County's Free Tuberculosis Hospital

MACKINAW, ILLINOIS

OAK KNOLL Sanatorium was opened on Sept. 19, 1921. It is operated under the Glackin Law and supported by the County of Tazewell in Illinois. Located in the heart of Illinois, surrounded by 60 acres of beautiful woodland, the building rests upon a knoll, the highest point in Tazewell county.

The capacity is 45 patients, limited to cases of adult type tuberculosis who are residents of Tazewell county. There have been approximately 1,000 patients admitted and treated. The sanatorium is equipped with a 200 milliampere modern x-ray with fluoroscopic attachment. Pneumothoraces, pneumo-peritoniums and operations on the phrenic nerve are done in suitable cases at the sanatorium.

H. D. Fast, M.D., Mackinaw, Ill., is Medical Director and Mrs. Margaret Baker, R.N., is in charge as Superintendent.

Illinois Sanatoria

FAIRVIEW SANATORIUM

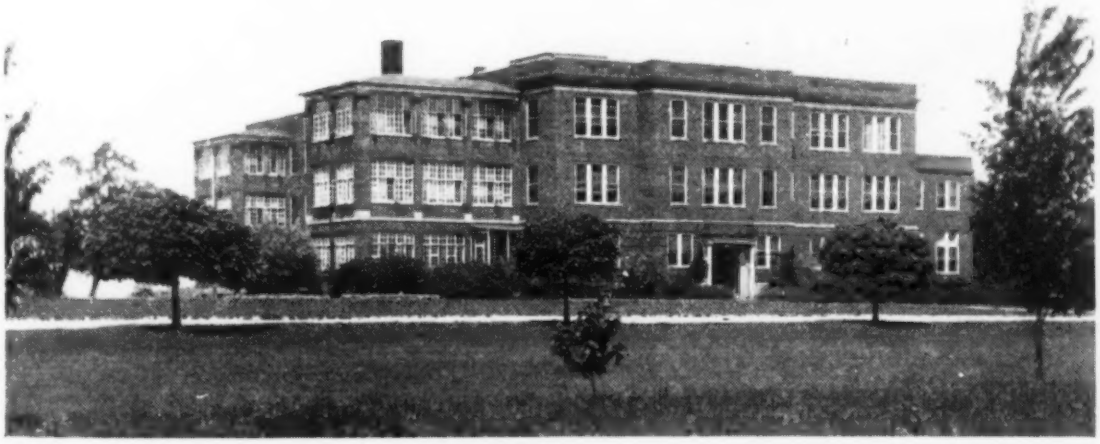
(McLean County Tuberculosis Sanatorium)
NORMAL, ILLINOIS

FAIRVIEW Sanatorium was established under the Glackin County Tuberculosis Sanatorium law of Illinois and it was the first County Sanatorium opened in the State in 1919. Admission is restricted to residents of McLean County. The Sanatorium is owned by McLean County and is maintained by a special excess tax and is controlled by a Board of Directors appointed by the Chairman of the County Board of Supervisors.

Dr. V. B. Marquis is the full-time Medical Director and has served in that capacity since 1928; Miss Sara Anderson, R.N., is the Superintendent.

The bed-capacity is 57 and an out-patient department is maintained. The building has recently been remodelled and among the improvements are: installation of an incinerator and a passenger elevator; provision made for a central linen room, nurses, private dining room, nine additional private rooms and a two-bed ward.

Pneumothorax treatments are given, with a large out-patient service. Ex-patients return for pneumothorax at definite periods, x-rays, laboratory routine and physical examinations are done at regular intervals and clinics for checking contacts are held twice each week.



MADISON COUNTY SANATORIUM

EDWARDSVILLE, ILLINOIS

THE Madison County Tuberculosis Sanatorium was erected in 1925-26. In May, 1926 the first patients were admitted. Ninety-three beds are provided for patients who must be legal residents of Madison County. Eighty beds are for white adults, eight beds for children and five beds for negroes; the latter number is in proportion to the negro population in Madison County.

All laboratory work is done in the well equipped institution laboratory with the exception of the Wasserman-Kahn test, which is sent to the State Department of Health in Springfield, Illinois. A new highly efficient and modern x-ray department is being installed at this time replacing the obsolete and antiquated present machine. Chest surgery is performed by the staff of Washington University Barnes Hospital in St. Louis. Only pneumothorax is administered in the sanatorium.

Weekly, three chest clinics are held at the hospital. Follow-up work on former patients of the sanatorium and on their families is carried out by the two field nurses.

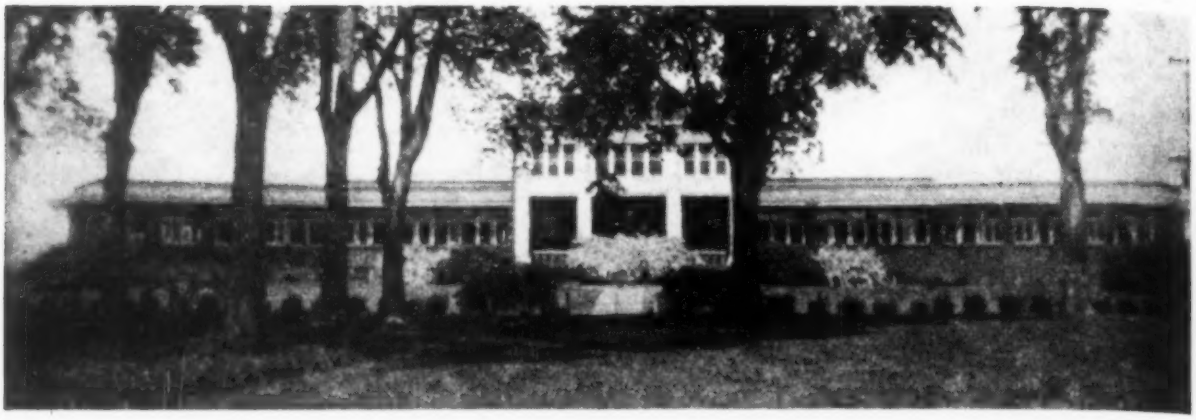
Occupational therapy will be taken up in the near future. A new fireproof nurses' home is to be built some time this fall.

The care for patients is free. Funds to operate the sanatorium are obtained on the basis of the "Glakin Law" of the state of Illinois.

Members of the Board of Trustees at present are: G. W. Tonkinson, D.D.S., president; George Schneider, vice-president; E. S. Meloy, M.D., secretary.

The superintendent and medical director is Dr. O. C. Heyer.

Illinois Sanatoria



McDonough County Tuberculosis Sanatorium

BUSHNELL, ILLINOIS

"ELMGROVE" — McDonough County Tuberculosis Sanatorium was appropriately named when built within the elms that encircled the old fair grounds. The first patient was admitted in 1926 and since that time over six hundred patients have been cared for in this institution located in the west central part of Illinois, near Bushnell. The facilities of the institution are available to all who can satisfy the residence requirements.

The original building is still used although it has undergone many alterations and improvements. Plans are now under consideration for further improvements.

In the past few years the sanatorium has extended its program to include collapse therapy and an outpatient department. In addition the institution personnel has taken an active part in case finding programs.

Dr. R. C. Benkendorf is the Medical Director at present.

VETERAN'S ADMINISTRATION FACILITY

HINES, ILLINOIS

VETERAN'S Administration. Edward Hines Jr. Center, Hines, Illinois was named after Lieutenant Edward Hines Jr. whose parents were Mr. and Mrs. Edward Hines of Evanston, Illinois and who died in service in 1918. Mr. and Mrs. Edward Hines contributed approximately $1,600,000 which was a deficiency sum to the total amount of $5,000,000 expended in the building of this institution originally.

It is under the general direction of General Frank T. Hines, Administrator of Veterans' Affairs, and is managed by Dr. Hugh Scott, chief medical officer.

While it is a general hospital functioning in the veterans' service, one of its most important divisions is the tuberculosis service. A resident staff of four medical men and approximately thirty-two nurses and orderlies are on service in this division, as well as several consultants. The service in this Facility is considered one of the finest tuberculosis services in the entire veterans' administration.

Illinois Sanatoria

Rock Island County Tuberculosis Sanatorium

ROCK ISLAND, ILLINOIS

In 1910 the people of the city of Rock Island voted on the Glackin law for the maintenance of a municipal sanatorium. Taxes were collected for six years, our first tax amounting to $5,934.91. We accumulated taxes until 1916 when the Willms property on twenty-fifth avenue and seventeenth street was purchased. The city previously had purchased one site and considered several which each time met with objections from property owners, and it was not until the property on twenty-fifth avenue and seventeenth street was purchased that we were able to open. The house was remodeled, ten LaPointe cottages were erected, and the sanatorium was formally opened on Oct. 19, 1916. Our first patient was received on Nov. 3, 1916. The sanatorium board members at that time were Drs. Joseph deSilva, Louis Ostrom, B. J. Lachner, and C. T. Foster. Mrs. Caroline W. Juhl, R.N., was appointed superintendent. This sanatorium continued to operate as a municipal sanatorium until it was discontinued by a vote of the people on Sept. 17, 1926. Since that time it has been taken over by the county and the new sanatorium built in 1931 on property adjoining the old sanatorium grounds.

The Rock Island County Sanatorium also operates under the Glackin law, which permits the levying of 1½ mill tax, but Rock Island county has been operating on only 1 mill.

Due to the fact that Rock Island county is already taxed to the limit provided by state law for county purposes and the sanatorium tax exceeds this limit, it must be voted as an additional tax and must be authorized by a vote of the people every ten years.

This tax was voted Nov. 7, 1920, and carried by a vote of 18,117 for, to 4,275 against. It was collected for 1921 and 1922 and then discontinued by the board of supervisors on account of objections by the railroad companies, after the courts held that the law had not been complied with because the ballot called for a tuberculosis sanatorium tax and did not state it was an "additional" tax over and above the constitutional limits.

On Nov. 4, 1924, the tax was again voted for ten years and carried by a vote of 16,957 for, to 9,373 against. On Nov. 6, 1934, the vote passed again with 29,337 for, to 5,014 against.

Dr. A. T. Leipold served as medical director of the sanatorium from 1924 until his death on July 4, 1935. Dr. H. A. Beam was then appointed medical director, taking over his duties on Aug. 1, 1935. The present board of directors consists of Thomas Lees, chairman, Dr. Louis Ostrom, secretary, and George K. Wilson, member.

Cook County Tuberculosis Hospital

OAK FOREST, ILLINOIS

COOK County Tuberculosis Hospital at Oak Forest, Illinois, was built in the year of 1912. The plans provided for a two-story brick structure with four pavilions, with accomodations for 172 patients and all the facilities for modern care of the tuberculous.

In 1914, the south grounds were taken to build an addition to the old hospital, thus taking care of 255 more patients. Further south, ten cottages were built thus bringing the total number that could be cared for, to 634.

Modern hospital equipment for the diagnosis and treatment of tuberculosis is maintained in order that the patients may receive the best possible care and treatment.

All Thoracic Surgery is performed by Dr. O. C. Schlack, Head Physician and a visiting specialist, assisted by two resident physicians. Phrenic-exeresis, Thoracoplasty, Artificial Pneumothorax, Extra-Pleural Pneumothorax, Pneumoperitoneum and Pneumolysis are performed at this sanatorium.

This sanatorium is governed by a Board of County Commissioners and is maintained by the County.

Endobronchial or Tracheobronchial Tuberculosis*

BENJAMIN GOLDBERG, M.D., F.A.C.P.
Chicago, Illinois

THIS involvement of the tracheobronchial tract was definitely described just 100 years ago. However, very little attention has been paid to its clinical manifestations until the last decade.

Pathologically the lesions are usually found located on the postero-lateral walls of the bronchi or trachea. Available evidence and personal observation seems to point to the pathogenesis of bronchial tuberculosis, occurring from the following sources.

1. Peribronchial invasion through tuberculous lymph nodes, by paranodal inflammation, adhesion to bronchial structure and penetration of the bronchial wall or more rarely through the lymph vessels. A pulmonary parenchymal invasion by bronchogenic spread from the endobronchial lesion may then be secondary to this.

2. Endobronchial lesions secondary to parenchymal lesions may occur either by direct implantation as a surface lesion or through the peribronchial structures usually by the lymphatics as mentioned above.

3. Direct hematogenous implantation is rare.

4. The lesion occasionally may be a terminal or agonal one due to the moribund state of the individual.

The lesions vary from solitary microscopic tubercles, followed by ulcers which may invade the submucosa leaving bridges of mucosa overlying, to distinct ulcers with secondary granulations causing partial or complete obstruction of the bronchial lumen. The ulcers may become annular, and involve the entire circumference of the bronchus. In instances, cicatrization follows ulceration with cicatricial stenotic lesions causing partial to almost complete obstruction. Hyperplasia without ulceration is also not uncommon.

Symptoms

1. A positive sputum which recurs, in the absence of a pulmonary parenchymal lesion, or in the presence of a parenchymal lesion which shows adequate healing so as to preclude the possibility of tubercle bacilli coming from it or in the presence of a parenchymal lesion, with or without cavitation, which has had a total collapse by means of artificial pneumothorax, all of which have been checked roentgenographically, is the most important consideration to direct attention to this condition.

2. Obstructive breathing, both inspiratory or expiratory, sibilant and sonorous rales or rhonchi, found in the parasternal regions, usually localized between the 1st and 4th ribs, although it may be audible standing close to the patients.

Typical asthmatic paroxysms of breathing may also occur.

3. Fever, may be absent in the localized endobronchial lesions. It is, however, usually low grade or may suddenly become elevated to 101° F - 103° F, due to absorption following bronchial obstruction from thick, tenacious mucous plugging a narrowed bronchial lumen.

4. Intermittent dyspnea with cyanosis, at times associated with bronchial obstruction, which is usually temporary, and which obstruction causes atelectasis varying in extent based on the bronchus involved.

Roentgen Findings

Uncomplicated endobronchial tuberculosis may show no definite findings on the flat or stereo film of the chest. Tracheal or bronchial obstruction only rarely is evident without the use of an opaque substance—Lipiodol.

Atelectasis which is intermittent in its appearance is a most important finding and, of course, should be followed by serial films to determine its clearance with opening of the bronchial lumen when due to sputum plugging the opening already narrowed by granulations or cicatricial stenosis.

Bronchoscopy

This determines the type and location of the lesions and allows of better placement of the opaque substance for roentgen films, which may more definitely outline the extent of the lesion.

* From Benjamin Goldberg's *Clinical Tuberculosis*, Second Edition, F. A. Davis Company, Philadelphia, 1939.

Smears of the exudate on the surface of the lesion to aid in diagnosis may be taken. Biopsy is obviously not recommended.

Prognosis

The prognosis is not very good. The spread of infection and reinfection bronchogenically to the parenchyma usually results in serious parenchymal lesions. Tracheal bronchial stenosis with bronchial obstruction may portend a fatal outcome.

Treatment

The most important consideration is careful adherance to the usual therapeutic tuberculosis regime. Bronchoscopic aspiration of thick tenacious mucous which may cause a temporary bronchial occlusion and atelectasis may be practiced. Topical application of Epinephrine 1/1000 or cocaine 10 per cent may allow temporary shrinkage in the presence of edema.

The utilization of silver nitrate in solution of 10 per cent to 30 per cent applied topically through a bronchoscope in the forms where the hyperplastic type predominates or where the ulcerative type is not completely annular.

Electrocautery has been used in some localized lesions with success. Roentgen therapy may be of value in some patients—again—where the annular type circumventing the bronchus is not present, because of stimulation to scar tissue formation, and obstruction. Dilatation of stenotic lesions with fine bougie's has been practiced, but there is danger of rapid spread into the parenchyma and possible miliary tuberculosis where mucosal infiltration or ulceration exists.

Collapse therapy—We have tried artificial pneumothorax when it could be performed, not as a curative measure, but in the hope of preventing parenchymal spread and disease.

Tracheotomy has been necessary in the presence of acute edema as an emergency measure.

BENJAMIN GOLDBERG, M.D. — *(Continued from page 6)*

sorial ranks of the four Class A Medical Schools in Chicago.

Realizing the futility of having lay individuals suspect tuberculosis when a great many doctors were not able to confirm or remove that suspicion, he instituted a school of tuberculosis at the Sanitarium, an educational system for medical students, and in a period of four years 1050 senior medical students from the Class A Medical Schools received lecture courses and a residency at the institution. In addition to this, several hundred physicians were given post graduate courses in the vicinity of their homes.

An observation ward was instituted at the Sanitarium which enabled every patient on admission to have a complete diagnostic study made not only of the major tuberculous condition, but of all complications, tuberculous as well as non-tuberculous. The indications for treatment of these conditions were immediately determined and the patient given prompt and adequate care, thus lessening the time interval necessary for the patient's institutional stay.

The development of the use of surgery in tuberculosis and the exploitation of all of the possibilities in that field went hand in hand with the new facilities which he developed because of this new departure. The research program was rounded out by additional appointments to the laboratory staff and the coordination of laboratory and clinical studies in both of these divisions. An extensive pathological museum to aid in proper teaching was also developed.

The above are a few of the improvements in the conduct of the 1200 bed Sanitarium. For the home care of patients, designated as field work, a constant survey was started to discover new tuberculous individuals and to improve the care of the tuberculous in their homes. During his regime as Director a peak of over 51,000 patients in the eight dispensaries and sub-stations with approximately 20,000 who had active tuberculous disease were under supervision. A new annual high mark of approximately 256,000 patients examined at the Sanitarium operated dispensary tuberculosis clinics with over 366,000 nursing visits to the homes of patients, to render supervisory and bedside care was established. Dental treatment at the dispensaries operated reached a high of 83,000 patients in one year.

In 1929 he started the first outpatient pneumothorax clinic in Chicago. Surveys and studies to improve the racial tuberculosis problem were made, resulting in great changes in Negro and Mexican tuberculosis mortalities. He developed schools in sanitation and public hygiene for the Mexicans and as many as 1600 adults were in attendance at one time, in such schools learning basic public health lessons in their own language. Other surveys were carried on in the study of childhood tuberculosis, tuberculous meningitis, bone tuberculosis and so forth.

He developed a new ultra violet therapy apparatus capable of irradiating 250 children in one hour.

Considerable of his time was given to lecture work both in Chicago and in the large cities of this country and abroad, to further stimulate the proven practices which had been developed at the Municipal Tuberculosis Sanitarium. From his office over a period of years, the bulletin of the City of Chicago Municipal Tuberculosis Sanitarium, prepared at intervals of two or three months, told the story of the most important standardized tuberculosis work to the physicians and public of Chicago, and the public health agencies and tuberculosis institutions of the world. From his office, week after week, were issued important changes in the tuberculosis situation, which were given to the public, by the press of this country and abroad, and helped create a tuberculosis conscience in their minds.

He continues his work, at this time, through the writings in the books which he has prepared, through the American College of Chest Physicians, his lecture work and personal practice.

The Ambulatory Pneumothorax Clinic; Its Place in a Public Health Program

FREDERICK TICE, M.D.*
Chicago, Illinois

TODAY, in marked contrast to the sentiment of a few years ago, ambulatory pneumothorax is being rather generally recognized as a public health instrument. Toward this change of sentiment the Municipal Tuberculosis Sanitarium of Chicago, we believe, has contributed not a little. In 1931 the Board of Directors of the Sanitarium, confronted with inadequate accommodations, long waiting lists and thousands of open cases on the register, drew attention to the public health possibilities of extra-mural collapse and launched a program to this end. Then, as now, it was fully realized that a period of sanatorium stay constituted the ideal condition for pneumothorax. The ideal, however, was impossible of attainment. Bearing in mind the lack of beds and the problem of open tuberculosis in Chicago, the officers of the Sanitarium found themselves on the horns of a dilemma. They had to face two alternatives, grave alternatives: Collapse therapy or nothing!

Collapse therapy in the field was no new thing. As far back as 1898 the writer, working at the old Dunning Tuberculosis Hospital with J. B. Murphy, and without the benefit of manometer or adequate x-ray, took active part in a field collapse program and witnessed fairly satisfactory results. Applying the experience against the existing situation, it was reasoned that if collapse therapy were practical in the year 1898 at Dunning, it should be practical in 1932 at the Municipal Tuberculosis Sanitarium, a twelve-hundred bed institution with a comprehensive dispensary system. In addition and in contradistinction to the plan at Dunning, the field program as contemplated would have the backing of a large, modern sanatorium. This latter was a weighty consideration. From the point of view of collapse the functions of the Sanitarium and of the dispensary system could be coordinated. Patients who failed to do well in the extra-mural clinic could be sent to the Sanitarium and, conversely, patients whose collapse had been well established inside the institution could be discharged to the field unit for refill and follow-up. Thus, the conjoined plan of field and sanatorium collapse was initiated. The field unit was stepped up from 27 ex-Sanitarium refill cases in 1931 to a registration of 1,674 cases at the end of 1938, and a total of 591 initial treatments and 29,614 refills during the year.

The objectives of the plan were three-fold: Public health, the individual interests of the patient, and economy. Regarding public health, it was well known that pneumothorax, in a considerable percentage of cases, cleansed the sputum and made the patient safe for the community. The knowledge, however, had not been applied and the objective remained unrealized. Regarding the personal interest of the patient, it was felt that the individual denied a sanatorium bed for lack of accommodation, would certainly be given a better chance under collapse than under the so-called routine expectant treatment. The expectant treatment for the type of patients seen in our dispensary service, largely laborers, migratory workers and domestics, is a myth. From the point of view of economy, a field collapse program offered attractive possibilities. With slight additions of personnel and very moderate expenditure for equipment, an institution with an already well established dispensary system could handle large numbers of cases at a very small per capita cost. With the budget as the controlling influence, institutional capacity is fixed by per capita cost. The ambulatory pneumothorax program, on the other hand, can, with comparatively little expense, be greatly expanded to meet the tuberculous quotient in a given community.

From what has been said it must not be deduced that the inauguration of an ambulant pneumothorax program is a simple matter. There are certain essentials to be borne in mind and certain conditions to be met. In the first place, we must think of the follow-

* President, Board of Directors, Municipal Tuberculosis Sanitarium, Chicago.

up. An extra-mural clinic without follow-up is doomed to failure. The patient is not through when he gets his refill in the clinic and takes the street car to his home. He must be watched for complications. His home conditions and social status must be studied. He must be instructed in the purpose and sequence of collapse. His family must be instructed. He must be encouraged or even morally coerced to return for his refills. All this follow-up in the home, as represented by the field nurse, is necessary.

In addition, to be on the safe side, the ambulatory clinic must anticipate trouble and be prepared for it. For acute accidents it is desirable to have a couple of beds on the clinic premises and the apparatus to meet such emergencies as air embolism. For such emergencies and for the maintenance of the collapse sequence by such measures as extrapleural pneumolysis and thoracoplasty, it is well, in the absence of institutional facilities within the organization, to have a liaison with a sanatorium or a hospital. A pneumothorax clinic that is not prepared to carry out the full collapse sequence, according to indications, can hope for only mediocre success. In our extra-mural clinic the doctors do pneumothorax, phrenic, oleothorax and intrapleural pneumolysis on the premises. Cases needing extrapleural pneumolysis or thoracoplasty are referred to the Sanitarium. All this does not mean that the extra-mural conjoined plan demands the backing of a sanatorium or the support of an extensive field service. In small communities the plan may be modified to suit the requirements. With one or two beds in the clinic, a couple of clinic nurses, two or three field nurses for follow-up, proper liaison with a chest surgeon and a hospital, the miniature plan within this scope can be as effective as the large scale undertaking.

In country communities remote from sanatoria, a program of field collapse, properly managed, may and should produce excellent results. The same may be said to apply to Negro communities. It is rather surprising that the inherent possibilities of collapse for the Negro have been so little studied. Since in the United States, of a population of twelve million Negroes, about 250,000 need hospitalization for tuberculosis with only about 7,500 beds to care for them, extra-mural collapse would seem to offer at least a large fraction of the solution. Included in this fraction is an element of great public health significance. Due to his housing conditions and to the congestion which acknowledgedly prevails in all urban Negro communities, the Negro, susceptible to start with, is brought into close and continued contact with open tuberculosis. In view of the confessed lack of beds, from the public health standpoint the best and, for the present perhaps, the only answer is collapse therapy. Since, for economic reasons, institutional isolation is impractical, the next best thing would seem to be a mechanical isolation of collapse. As will be detailed later, the results of field collapse in the Negro, while not as successful as in the white, are sufficiently promising. The results of the program as a whole, of the combined field and sanatorium plan in Chicago are recorded in a Bulletin soon to be released.

The material is much too exhaustive for analysis in a paper of this length. In view of the space limitation it is possible to draw attention to only a few of the highlights. The investigation covered the six and one-half year period from January 1, 1931 to July 1, 1937, and represented a study of 8,083 charts, 3,090 of which represented patients treated over three months. In the Bulletin the collapse program was defined as a dual plan with a common purpose, intra-mural collapse, represented by 1,397 patients under collapse at the Sanitarium; extra-mural collapse, represented by 829 patients under observation and treatment at the ambulatory pneumothorax clinic on Wacker Drive; a correlation of both clinic and institutional facilities to promote unity of service, represented by the 864 patients who had combined Sanitarium and field treatment during the course of the survey. The material was bad, 94.1 per cent advanced tuberculosis, 84.4 per cent positive sputum. During the investigation the matter of sputum conversion remained in the foreground and the influence of collapse as a public health instrument was closely studied.

Regarding results, 2,142 of the cases treated, or 75.8 per cent, were living at the time of the report as against 39.3 per cent of the controls. From the point of view of the National Classification, of the 2,824 treated cases

still living 45.6 per cent fell in the apparently cured, arrested, apparently arrested and quiescent groups, 20.8 per cent were improved, 9.6 per cent unimproved, 24.1 per cent dead.

Regarding the Negroes, in the six and one-half year period 439 Negroes were treated over three months, 77 under three months; 97 were subject to "pneumothorax attempts," and 458 were taken as controls. Of the 204 Negro males treated, 101 or 49.6 per cent were living and 103, or 50.4 per cent dead at the time of the report. Of the 193 Negro females treated over three months, 127, or 65.8 per cent were living, 66, or 34.2 per cent dead. This 65.8 per cent for the Negro females does not compare badly with the 79.7 per cent survival rate for the female whites in the report, a difference of only 13.9 per cent against the difference of 28.1 per cent in the males. Considering the Chicago tuberculosis death rate of 275 per hundred thousand for the Negro as against 36 per hundred thousand for the white, these collapse results tend to show a definite bridging of the gap and must be considered satisfactory.

Regarding conversion, of the 1,702 positive sputum cases treated and still alive at the time of the report, 1,215, or 71.4 per cent were converted and 417, or 24.5 per cent remained positive. During the investigation we were, naturally, anxious to study the relative efficacy of extra-mural and intra-mural collapse. How did ambulant pneumothorax from the initial injection onward compare with collapse inside the institution? Tabulation of the 3,090 treated cases showed 66.5 per cent living for the clinic patients, 75.9 per cent for the sanatorium patients and 84.9 per cent living amongst patients who received treatment at both the clinic and the sanatorium. As might be expected, the figure for the sanatorium and clinic combined is the best, indicating a coordination of the field and institutional functions as the ideal basis for a plan of collapse.

The much discussed question of the initial treatment did not seem to make a very great difference, 65.9 per cent living for those who received the initial treatment in the clinic as against 71.4 per cent that received the first injection at the sanatorium. This figure, embracing a large number of cases (1192 for the clinic, 1500 for the sanatorium) dissolves the myth that the initial treatment is purely an institutional prerogative. Nor, under proper circumstances, can the initial treatment outside the sanatorium be said to be dangerous.

In the seven year period, January 1, 1931 to January 1, 1938, from a total of 83,245 injections in the clinic, there occurred 28 air emboli. This accident ratio, one embolus to every 2,973 injections, compares favorably with institutional figures and is considered satisfactory for an extra-mural program dealing almost exclusively with advanced tuberculosis.

Reverting again to the public health aspects of our program, we were, of course, eager to learn exact details concerning change in the sputum status from positive to negative. Was the change transitory and, therefore, unimportant or was it more or less permanent and, therefore, significant? The table below, covering the 1,215 conversions gives the detail.

Time Elapsed Between Conversion and Date of Report

	Pneumo Only Over 3 Mos.	*Phrenic Only*	*Pneumo. and Phrenic*	*Thoracoplasty Alone and With Others*	*All Others Total*	TOTAL
Under 6 months	62	17	18	29	18	144
6 months to 1 year	81	15	27	33	21	177
1 to 2 years	200	25	66	37	39	367
2 to 3 years	132	16	40	20	19	227
3 to 4 years	74	22	21	19	18	154
4 to 5 years	48	11	14	13	8	94
5 to 6 years	17	4	4	0	2	27
6 years and over	9	8	4	4	0	25
	623	118	194	155	125	1215

It will be seen that of the 1,215 cases negative at the time of the report, 177, or 14.6 per cent had maintained their negative status for six months to a year; 367, or 30.2 per cent had maintained their status over a period of one to two years, 277, or 18.7 per cent for two to three years, 894 cases, or 73.6 per cent of the total had remained consistently negative over one year. It goes without saying that some or even a fair fraction of these converted cases may return to positive as time goes on. On the other hand, many of the cases now classed as positive show a diminution of sputum output and bacillary content and presumably in due course, as the collapse proceeds, will turn negative.

The "staged conversion" as we call it, is a common phenomenon in our work. By "staged conversion" is meant a sputum sequence showing a vacillation between positive and negative with a gradually accrescent emphasis on the negative. Cases persistently positive at first finally become negative, then, perhaps, positive again, then negative with an occasional positive, diminishing in frequency to final and persistent sputum clearance. The following sputum history (taken from the files) illustrates the point: Eighteen positives followed by seven negatives, another positive followed by six negatives; two more positives followed by sixteen negatives:

positive				
6- 4-35	12-18-35	*negative*	6-17-36	*positive*
6-25-35	12-24-35	"	6-24-36	"
6-26-35	12-26-35	"		
7-25-35	1- 2-36	"	7- 1-36	*negative*
7-27-35	1- 8-36	"	7- 9-36	"
7-30-35	1-22-36	"	7-22-36	"
8- 6-35	1-29-36	"	7-29-36	"
8-22-35			8-12-36	"
8-29-35	2- 4-36	*positive*	8-26-36	"
9-12-35			9-23-36	"
9-20-35	2-13-36	*negative*	10- 7-36	"
10-22-35	2-19-36	"	11-20-36	"
10-29-35	3-18-36	"	12-10-36	"
11- 7-35	4-15-36	"	1- 5-37	"
11-14-35	5-10-36	"	1-20-37	"
11-20-35	5-20-36	"	1-25-37	"
11-27-35			2- 3-37	"
12- 4-35			3-20-37	"
			4-17-37	"

In a large scale collapse plan there is, as one would suspect, a certain degree of flux between positive or negative. If, however, the program is successful, the balance of total reports leans gradually toward the negative side and the index of infection in the community is appreciably lessened. This diminution in total bacillary output is bound eventually to have favorable repercussion on the tuberculosis problem as a whole. As the "fountains of infection" are closed, the number of secondary cases is decreased and collapse therapy, which promotes the closure, therefore, can be called a sound and effective public health instrument.

Summary and Conclusions

Ambulatory pneumothorax is nothing new.

Ambulatory pneumothorax, as a public health instrument, has gained wide recognition in recent years. For best results, to provide for complications and to insure the proper sequence, of collapse, including thoracoplasty when necessary, the ambulatory collapse clinic should establish liaison with a hospital or sanatorium. Insofar as possible, the services of a chest surgeon should be available to meet advanced needs. In view of the number of young men being trained in the various institutions, this latter postulate is daily becoming more practical.

Ambulatory pneumothorax, from the initial injection onward, under proper conditions is not dangerous, as revealed by the figure of 28 air emboli in 83,245 injections in the seven years series of ambulatory pneumothorax cases.

Ambulatory pneumothorax is economical and applicable to both large and small communities. In large communities with an existent sanatorium and dispensary system, the dual plan implying coordinated intra-mural and extra-mural treatment offers excellent results.

Extra-mural collapse is indicated to meet the personal and public health indication of the Negro for whom there is admittedly a great shortage of beds throughout the country. In communities of any size and racial texture, a well organized plan of ambulatory pneumothorax should result in the closure of an appreciable number of open cases and a consequent improvement in public health.

PNEUMOPERITONEUM

On PAGE 63 of the recent splendid Bulletin of the City of Chicago Municipal Tuberculosis Sanitarium by Tice and Hruby, covering results of the years 1935 to 1937, inclusive, there appears a table, number 16, entitled "Operative Procedures Against End Results." In this table, it shows that of 87 patients treated by pneumoperitoneum, 85.1 per cent were known to be alive, 11.5 per cent were known to be dead, and 3.4 per cent were untraced. On the face of it, this was the most survived of all therapies. At least from these figures conclusions can be drawn as to the safety of the procedure in experienced hands. The writer has yet to meet an operator, who has had any sizeable experience with the procedure, who is not enthusiastic about it, at least as an adjunct to collapse therapy. There is no doubt that it can cure some cases of pulmonary tuberculosis and that it can bring some apparently hopeless cases into condition such that other collapse procedures can be successfully used.

F. W. B.

THEODORE B. SACHS, M.D. — *(Continued from page 11)*

Tuberculosis Institute began a drive to create sentiment for the governmental care of the tuberculous, through an adequate system of lay education, tuberculosis dispensaries, and institutions large enough to cope with the needs of the community. It was through this that Senator E. J. Glackin introduced the famous Glackin Act, which was passed in the state legislature and which resulted, through the provisions of that act, in the creation of the City of Chicago Municipal Tuberculosis Sanitarium.

Dr. Sachs became a member of the Board of Directors of that Institution on April 22, 1909 and remained so for seven years. The organization of dispensaries, the purchasing of a site, and the building of this large Institution occurred with Dr. Sachs as one of the most important guiding forces. He also stimulated the Jewish Consumptive Relief Society and the Baron Hirsch Woman's Club in the building of the Chicago Winfield Sanitarium, opened on February 6, 1909; became a director of the National Tuberculosis Association on June 20, 1911; its first vice-president on May 9, 1913; and, finally, president of the National Tuberculosis Association in June, 1915.

Few individuals in their lives have ever given more freely to improve the wellbeing of the impoverished and sick. Few have labored so unselfishly. Unfortunately, the conduct of governmental institutions and monies spent in large sums, creates an ulterior interest in some of those who walk this earth; a not too uncommon feeling of those who follow the profession of politics. Thus, when machine politics rolled down upon Dr. Sachs, his kind and sensitive soul, hidden by an irritable exterior, could not take it.

I was with him on the last afternoon of his life on this earth. He seemed a body filled with drear fatigue, a soul despondent in the failure of those he had served, to rise, to protest, to protect him from the calumny of those who would destroy, only for personal greed.

And as the clearness of the following day broke and the citizenry arose throughout the community, the country began to realize that a great leader had gone. The entire country clamored to compel the continuance of these ideals, by which he had lived and for which he had died.

No monument of stone stands erected to him. Dedicated to the achievement of his goal, he left this world with the hope that in his passing those he gave battle for would then be healed and tuberculosis be conquered. So he served humanity and progress.

Zace Tuberculosis Sanatorium

WINFIELD, ILLINOIS

Facilities Available for All Stages of Tuberculosis

•

Private and Semi-private Rooms with French Windows

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A. S. WEBB, M.D., MEDICAL DIRECTOR

Tel. Wheaton 978 Chicago Office, Tel. State 4763

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DISEASES OF THE CHEST

MISSISSIPPI VALLEY STATES ISSUE
»» ««
INDIANA SECTION

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A Brief History of Tuberculosis in Indiana

AS EARLY as 1900 the Indiana State Board of Health took up the fight against tuberculosis. In that year Dr. J. N. Hurty, the secretary, issued an eight-page pamphlet on the Causes and Prevention of Tuberculosis. This pamphlet was sent to families where the disease was known to exist. In 1907 the State Board of Health prepared an exhibit which was taken to county seats under the direction of Dr. Hurty who closed the exhibit with an illustrated lecture on the Cure and Prevention of Tuberculosis.

The first attempt to organize tuberculosis work in Indiana was made in October, 1904, and followed a meeting of life insurance agents in the state, where the question of tuberculosis prevention was discussed. Dr. A. S. Knopf, of New York City, who was instrumental in bringing about the formation of the National Tuberculosis Association, was the speaker at this meeting and urged the establishment of a state association for the prevention of tuberculosis, generating the enthusiasm which brought it about. The association was formed with Dr. W. N. Wishard as president, and Dr. Theodore Potter as secretary. There were no funds, however, with which to conduct an active campaign and no definite results followed. However, under the leadership of Senator John W. Kern, who was the second president, the association continued a little while longer.

About this time Dr. Hurty, as secretary of the State Board of Health, and others interested in the campaign against tuberculosis, started the movement for a tuberculosis hospital to be built and maintained by the state for the purpose of treating early cases. In 1905 a bill was introduced in the state legislature calling for the appointment of a commission to report on the advisability of building such a state sanatorium. Upon passage of the bill, Governor Hanly, who was interested in health matters, immediately affixed his signature and appointed the commission which reported in 1907, selecting the present site at Rockville. A bill creating the State Sanatorium was subsequently passed, and the institution was built, opening its doors in 1911.

The State Association organized in 1904 had ceased to exist because it had no funds with which to function, and another attempt to organize was made in 1907 when the Indiana Society for the Study and Prevention of Tuberculosis was formed with Dr. Potter still assuming active leadership. The society carried on a more or less desultory campaign, principally in the City of Indianapolis. No further record of any activities is found until October 5, 1911, when representatives of seven tuberculosis associations convened in Indianapolis to meet with E. G. Routzahn, field worker for the National Tuberculosis Association, for the purpose of building up a stronger state unit and formulating a definite program of work. A resolution by Dr. Potter that the association be placed on a more permanent basis resulted in the election of Prof. Severance Burrage, of Purdue University, and president of the association at Lafayette, as president of the state body.

From that date the State Association began to function, and with the aid of funds received from the 1911 sale of Christmas Seals—then known as Red Cross Seals—Dr. Henry Moore, of Indianapolis, was in March, 1912, selected as field organizer. At the following annual meeting held in January, 1913, the president reported that 82 counties had been visited resulting in the formation of associations, committees, or other groups interested in the tuberculosis campaign. The report written by Dr. Moore was never presented by him, as he died at his desk just as the report was finished, a few days before the meeting.

Since the establishment of the State Tuberculosis Association, thirteen bills having a direct bearing on the problem have been enacted into law. Outstanding among these were: the county sanatorium law passed in 1913; making tuberculosis a reportable disease, 1915; appropriating $10,000 for the maintenance of a division of tuberculosis in the State Board of Health, 1917; and in the same year providing for the care of tuberculous patients in county general hospitals; in 1920 permitting counties to contract with sanatoria for the care of patients; and the special session of the legislature, held in 1938, created another state sanatorium for the southern part of the state.

During this period there have been definite increases in health services. In 1913, six counties supported county nursing service; whereas in 1939, fifty-eight counties paid for such service. In 1913 only one county had a tuberculosis clinic; in 1939 fifty-two counties conducted such clinics. School health education was not started in 1913, but in 1939 such work was carried on in practically all of the ninety-two counties in the state. Sanatorium provisions in 1913 were found in one county with fifty beds plus a state sanatorium of 100 beds. In 1939 there were nine county tuberculosis hospitals, one state sanatorium, and one city tuberculosis hospital, the total number of beds in the state being 1,749. The new state sanatorium now being established and which will be opened within a few months will add 150 beds.

Such, in part, is the story of the fight against tuberculosis in Indiana.

Murray A. Auerbach.

TUBERCULOSIS PIONEERS IN INDIANA

ALFRED HENRY, M.D.

1875 - 1932

A PIONEER in tuberculosis work and a leader in the Indiana field was Dr. Alfred Henry who died on December 12, 1932, at the age of 57. Born on a farm near Jasonville, Indiana, in 1875, he lived the life of the farm youth, going to school and tilling the soil. As he grew to manhood, his ambitious nature directed him to the normal school for teachers, now known as the State Teachers College, where, upon graduation, he received a license to teach. Later he entered the Indiana Medical College of Purdue University from which school he graduated in 1907. He excelled as a teacher, and was so recognized in the field of medicine in which he engaged, and in which he became prominent. Specializing in tuberculosis, he became a leader in this profession and soon became known throughout the country.

He occupied the chair of Clinical Professor of Medicine in the Indiana University School of Medicine, and became mentor of hundreds of medical students all of whom delighted to attend his classes. Recognizing the value of the voluntary agency in tuberculosis work, he took a prominent part in the organization of the Marion County (Indianapolis) Tuberculosis Association, was elected its first president, and served in that capacity for seventeen years. In 1916 he was president of the Mississippi Valley Conference on Tuberculosis, in 1917 he was elected to the presidency of the Indiana Tuberculosis Association, and in 1931 was given the highest office in the tuberculosis field—the presidency of the National Tuberculosis Association.

His unique personality impressed those who came in contact with him, and his loss is still felt in Indiana.

JAMES OTHO PARRAMORE, M.D.

1889 - 1939

DOCTOR James Otho Parramore, Superintendent of the Lake County Tuberculosis Sanatorium at Crown Point died of Brain Tumor on January 24th in Chicago at the Billings Hospital. He is survived by his wife, Grace, and two children, James, age 13; and Mary, age 7.

Dr. Parramore was born in Hampton, Virginia in 1889. He received his elementary education in the schools of Hampton and later attended the school of liberal arts at William and Mary College at Williamsburg, Virginia. He obtained his medical degree at the Medical College of Richmond, Virginia, and his internship in a New York City Hospital.

Following his internship, Dr. Parramore worked at the Virginia Tuberculosis Institute and then at the Tuberculosis Hospital at Mt. McGregor in the Adirondacks.

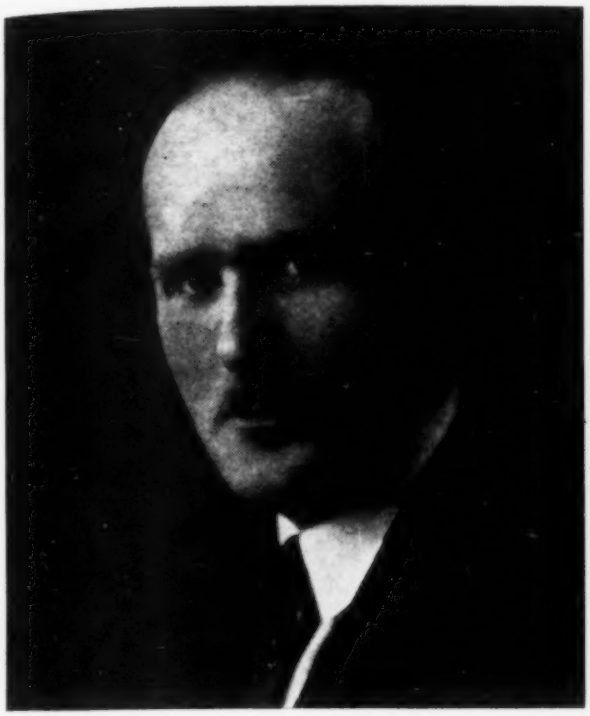
In 1917, Dr. Parramore volunteered for World War Service in the U. S. Medical Corps, and was assigned to first line duty with the British Army. After the armistice, he retired with the rank of Captain.

The years following the war were spent as Assistant Medical Director of the Tuberculosis Sanatorium of Rochester, New York. He remained there until 1925, when he came to Indiana to open the newly erected Tuberculosis Sanatorium at Crown Point.

When Dr. Parramore arrived the institution contained 100 beds; now there are 300, a new wing and a chapel having been completed this January.

Had Dr. Parramore lived, he would have taken office as President of the Lake County Medical Society in January, 1940. At the time of his death, he was a member of the Indiana State and American Medical Associations; the National Tuberculosis Association; the Sanatorium Association; the Trudeau Society; the Association of Military Surgeons; and the American College of Chest Physicians.

TUBERCULOSIS PIONEERS IN INDIANA



ST. CLAIR DARDEN, M.D.

1891 - 1932

ST. CLAIR DARDEN was born in Franklin, Virginia, November 18, 1891, the son of Margaret Edney and John W. Darden. He attended public school in Franklin, later enrolling in the Franklin Military Academy from which he graduated in 1908. He then entered the Medical College of Virginia, at Richmond, Virginia from which institution he received his degree in 1912. He served his internship in Sarah Leigh Hospital, Norfolk, Virginia before starting in private practice in Branchville, Virginia. In 1914 he became a victim of tuberculosis, so gave up his private practice to enter Catawba Sanatorium, Catawba, Virginia where he remained for eighteen months, serving as a staff member the last twelve months. It was during this time he decided to become a specialist in tuberculosis and to devote his career to its cure.

In 1916 he accepted the position of resident physician at Samuel W. Bowne Memorial Hospital at Poughkeepsie, New York, remaining there until he enlisted in the army in 1917. He served with the Medical Corps at New Haven, Connecticut, in the capacity of a tuberculosis specialist until his discharge from service on September 8, 1919. He returned to Samuel W. Bowne Memorial Hospital for two months before accepting the post of Superintendent of the Healthwin Hospital at South Bend, Indiana, on Thanksgiving Day in 1919.

The pioneering at this county hospital had been done, but Dr. Darden immediately set forth to increase its capacity and efficiency. Under his leadership the hospital doubled its bed capacity and grew from a $100,000 institution to one with a capital investment of $500,000. Keeping pace with medical science, x-ray, laboratory and surgical facilities were installed which would provide adequate treatment for the tuberculous.

Just as Dr. Darden was completing his thirteenth year as Superintendent of Healthwin Hospital, on November 16, 1932, near the close of a two weeks hunting trip in Wisconsin, Dr. Darden was burned to death in a hunter's lodge at Mahlen's resort, Danbury, Wisconsin.

JAMES H. STYGALL, M.D.

1887 —

DOCTOR James H. Stygall was born at Buffalo, New York, on March 10, 1887. He graduated in medicine from the University of Buffalo in 1910 and interned at the Erie County Hospital, after which he spent several years on various Sanatorium Staffs in the east. He also attended the Trudeau School of Tuberculosis.

Dr. Stygall became Superintendent of the Cattaraugus County Sanatorium at Olean, New York. When the war broke out, he entered the chest service for 18 months and was finally discharged with the rank of Captain.

He was Medical Director of the Indiana Tuberculosis Association from 1921 to 1924 and assisted in establishing chest clinics throughout the state. He is a past president of the Indiana Trudeau Society and the Indiana Tuberculosis Association.

At the present time, Dr. Stygall is Assistant Professor of Medicine at Indiana University Medical School; Chest Consultant at the Indianapolis City Hospital and Indiana University Hospitals; Fellow of the American College of Chest Physicians; Director of the National Tuberculosis Association; President of the Board of Trustees of the Indiana State Sanatorium; Medical Director of the Ella B. Kehrer Sanatorium; Second Vice-President of the American Academy of Tuberculosis Physicians; Chairman of the Tuberculosis Committee of the Indiana State Medical Association; and Governor for Indiana of the American College of Chest Physicians.

The commissioners of St. Joseph County have paid tribute to him by naming the road on which Healthwin Hospital is located "Darden Road". The citizens of the community placed a bronze tablet to his memory in the mantel piece of the fireplace in the lodge of Camp Darden, the summer nutrition camp operated on the hospital grounds. This camp was named in his honor by popular vote of the fifty children who were cared for there in 1921.

Indiana Sanatoria

INDIANA STATE SANATORIUM

ROCKVILLE, INDIANA

THIS is the only state institution in Indiana devoted exclusively to the diagnosis and treatment of tuberculosis. Established by legislative acts of 1907 and 1909 it was formally opened for patients on April 1, 1911. From the time of its opening to the present the institution has treated more than five thousand cases of tuberculosis.

This institution is located on the rolling ground of Parke County where there is considerable timber, and altogether the location is a beautiful one.

The patients here receive the best of medical and nursing care. There is a staff of several physicians who have had years of experience. Detailed records are kept of each person's progress and numerous x-ray examinations are made.

A well equipped outpatient department offers the public who cannot afford to pay for these services elsewhere an opportunity to come on Monday and Thursday afternoons for examination. Report of the examination is made to the patient's home physician only.

The institution consists of a main administration building with three wings, which house all of the very sick patients. Also at some distance there is a unit which takes care of about fifty adults who are ambulatory and not likely to be bedfast.

Located as it is at a distance from the city it is essential that the institution must be more or less complete in itself. Consequently it has its own power plant, electric generating equipment, laundry and water system.

We have a capacity of two hundred fifty patients, and as can be imagined it takes a large staff of employees to keep things going properly and to keep up the appearance of the institution. About one hundred twenty employees are needed.

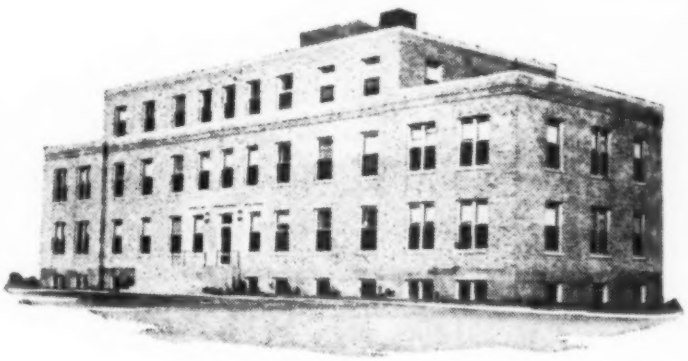
An accredited herd of splendid Holstein cows furnish the institution with its milk, thus assuring a clean, nutritious product at all times.

Application forms for admission are obtained from the Superintendent. The law stipulates that indigents shall have first chance for admission and that no patient shall pay to exceed $5.00 per week, even if able. Any legal resident of the state is eligible for admission regardless of age or color.

Dr. J. V. Pace is at present the Superintendent.

HILLCREST TUBERCULOSIS HOSPITAL

VINCENNES, INDIANA



HILLCREST Hospital was officially opened on September 1st, 1937, for the care of tuberculosis and its complications. It was built by Knox county on a hill north of the city of Vincennes, Indiana. It is a modern brick building, which accommodates 65 patients.

This hospital is equipped to do x-ray, fluoroscopic examination, pneumothorax, light therapy and surgery of all kinds when indicated. The sanatorium maintains an active "Out Patient Department" for diagnosis and therapy. The facilities of this institution are open to all patients with tuberculosis.

Dr. R. C. Meyer is the Superintendent and Medical Director.

Indiana Sanatoria

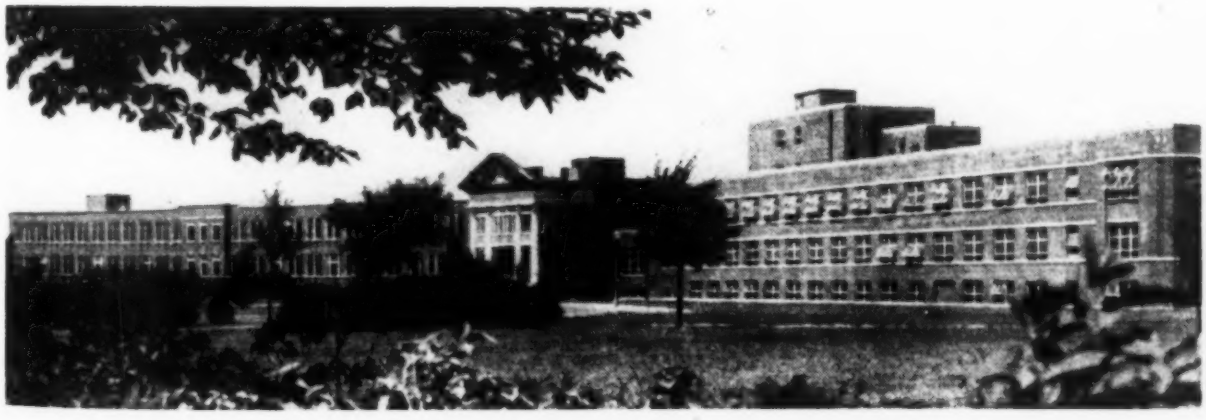
Entrance, Main Building

SUNNYSIDE SANATORIUM

INDIANAPOLIS, INDIANA

THE Marion County Tuberculosis Hospital which is located twelve miles northeast of Indianapolis has a capacity of 244 patients. The Institution serves the citizens of Marion County and the City of Indianapolis. It was opened September 15, 1917 and since that time has treated over four thousand patients.

Dr. F. L. Jennings is superintendent and medical director.



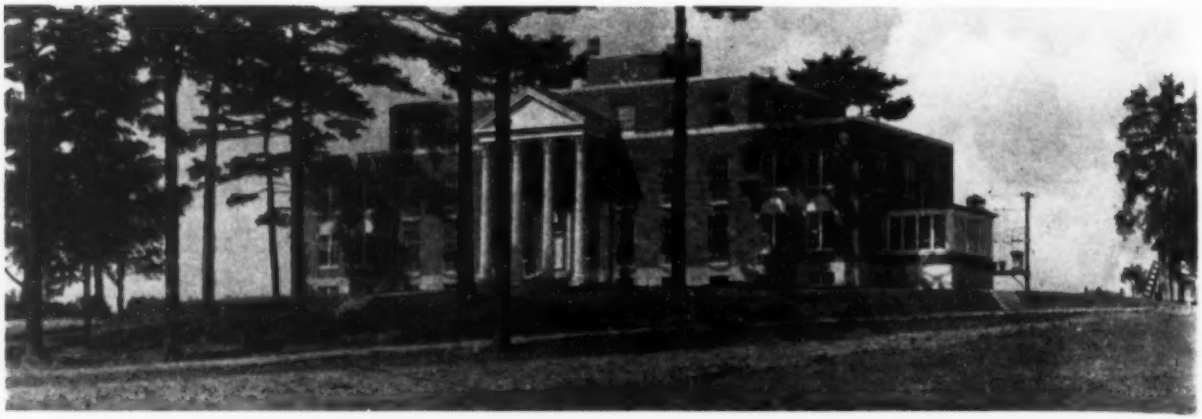
LAKE COUNTY SANATORIUM

CROWN POINT, INDIANA

THE Sanatorium was established in 1924, and had a bed capacity of 40. The hospital grew rapidly to meet the demand for beds in Lake County, and additions built in 1926, 1928 and 1939 increased the bed capacity to three hundred beds, including two children's wards of twelve beds each. The hospital is fully equipped with x-ray facilities, an up-to-date laboratory, and a complete surgery, in which all modern forms of treatment are given. An out-patient department is included, as part of the hospital service for case-finding, diagnosis, treatment, and rehabilitation.

Dr. P. H. Becker is the Medical Director and Superintendent.

Indiana Sanatoria



SMITH - ESTEB MEMORIAL HOSPITAL

RICHMOND, INDIANA

THE Smith Esteb Memorial Hospital for the treatment of childhood and adult pulmonary tuberculosis was completed in 1934 at a cost of $100,000. It has an operating capacity for approximately 60 patients. It is located on high ground near Richmond, Indiana, and takes care of the patients of Wayne County. It also takes patients from surrounding counties on contract. A nurses' home was completed at a cost of $25,000 this year. The Smith Esteb family contributed $170,000 for this hospital. Dr. Steven C. Markley is President of the Board of Managers and Dr. Robert Staff is the superintendent of the hospital.

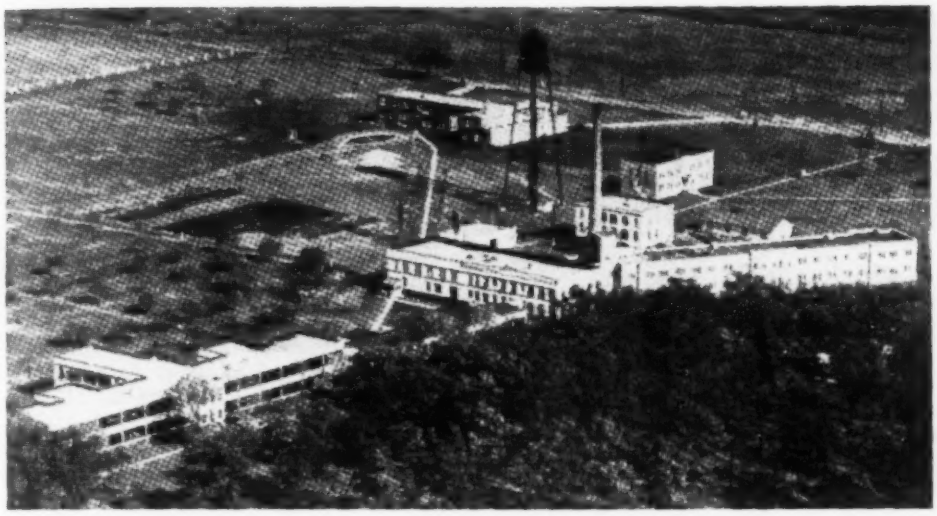
ELLA B. KEHRER HOSPITAL

ANDERSON, INDIANA

THE Ella B. Kehrer Hospital for the treatment of Madison County tuberculosis patients is the direct result of the tuberculosis work that Mrs. Ella B. Kehrer had done in previous years in Madison County.

The Hospital has been open fifteen years and has a capacity of 75 patients. A summer camp is operated for contact children during the summer months. This gives a vacation for 300 children during the summer. All stages of pulmonary tuberculosis are treated. Mrs. Kehrer is the Superintendent and Dr. James H. Stygall is the Medical Director. A tuberculosis clinic is held at the Hospital each month.

Indiana Sanatoria



HEALTHWIN HOSPITAL

SOUTH BEND, INDIANA

HEALTHWIN Hospital was founded by the St. Joseph County Tuberculosis League in 1909 as a "Tuberculosis Camp" in Pottawatomi Park, South Bend, caring for six patients. At intervals during the next four years additional facilities were added and, by 1913, the hospital was confronted with the necessity of expense—too much for private funds.

At that time there was no legislation which allowed counties to operate tuberculosis hospitals. Therefore, the people in St. Joseph County that were responsible for the original tuberculosis camp went before the Legislature and secured legislation permitting the county to take over the responsibility of the hospital.

The first appropriation was made in 1912 and the first money spent in 1913 to obtain the present ninety-two acres north of South Bend. The building program was begun to accommodate twenty patients. Throughout the years additional buildings and facilities have been added and the facilities of the hospital have been extended to surrounding counties.

At this time, the hospital accommodates two hundred patients, there are complete laboratory, x-ray, and surgical facilities, and all types of tuberculosis are treated. Dr. Robert B. Sanderson is the Medical Director and Superintendent.

CONGRATULATIONS

THE Irene Byron Sanatorium of Fort Wayne, Indiana, congratulates the editors of DISEASES OF THE CHEST, the chairmen and members of the different committees, and in particular the chairman and members of the committee of the Indiana Section for this Special Issue.

The Irene Byron Sanatorium is keeping in step with the progress being made in the treatment of tuberculosis and it is now completing a new building for the modern care of the tuberculous.

On October 10-12, the Indiana State Medical Society will meet at Fort Wayne; and on November 15th, a Tuberculosis Institute will be held at Fort Wayne. The officials of the sanatorium will be pleased to have the doctors visit the sanatorium while they are in Fort Wayne.

Dr. M. H. Draper is the medical director of the sanatorium and Mr. Martin Luecke is the superintendent.

IRENE BYRON SANATORIUM

Fort Wayne, Indiana

Chronic Low Grade Malaria
Simulating Tuberculosis

GARDNER C. JOHNSON, M.D.
Evansville, Indiana

THE WRITER lives in a city on the Ohio river that in the early days had much malaria and the disease is not rare at some seasons of the year today. The type of disease we are seeing is not the usual text book type. In fact, we have been unable to find any good description of what we are seeing in any text book or laboratory manual and we have searched many. Lt. Col. Chas. E. Craig, in Oxford Loose Leaf Medicine, comes the nearest to describing our picture. The tertian type has been the most common, but we also see numerous quartan types.

Acute malaria with chills and fever is usually easily recognized under the microscope, and requires very little time, but the chronic type requires painstaking search, more than most laboratory workers are willing or have time to give. Most text book authorities state that it is impossible to recognize many cases of chronic malaria by blood examination, but our experience would indicate that 90 per cent can be recognized by proper blood study and patients do not need to be given quinine needlessly.

My practice being limited to tuberculosis, most patients come to me because of symptoms suggesting that disease. For some time my assistant, Miss Ethel Hollingsworth, had been calling my attention to bodies seen in blood that did not appear normal, but it was not until 1931 that we became thoroughly aroused about them. June 1, 1931 a young man just out of high school came for examination with symptoms strongly suggestive of tuberculosis — frequent colds, cough, afternoon temperature of 99 to 100, loss of energy and ocassional night sweats. Careful examination including sputum, tuberculin test and stereo-x-ray showed no evidence of active tuberculosis. Slight local reaction to O. T. but 10 mg. failed to produce any general reaction. Blood count— Hem. 75 per cent; red cells, 3,500,000; W. C. 9,000; Polys., 70 per cent; Small lymphs, 26 per cent; L. mon., 2 per cent; Eosin., 2 per cent. The only definite thing we found was these bodies in the blood which we decided were malarial parasites. Quinine for six weeks caused the disappearance of all symptoms as well as these bodies from the blood.

This experience aroused the question—Have we been overlooking these cases in the past? Since that time a blood count with search for malarial parasites became a part of every examination. A few of our patients give a history of malaria with chills and fever in their past lives, but a very large majority give no history or present symptoms suggestive of this disease — showing the importance of painstaking blood examination in a malarial country by a technician who is able to recognize the chronic types.

We have tried different methods of staining, with thick and thin smears, but find none better than Wright's, with a thin smear using distilled water with a buffer solution for diluting the stain. A good smear properly stained is important, this to be followed by a painstaking search, especially if there is an unexplained anemia.

These chronic types often do not show the red and blue chromatin and for that reason are overlooked or mistaken for dirt. Movement of certain red cells in the counting chamber often arouse suspicion and leads to a longer search and repeated smears, on different days. In a large majority of cases the parasites are found on the first smear.

During the years 1931 to 1936 we found many cases. About twenty per cent of patients that came for examination were found infected. During the past three years they have been rather rare. During the first three months of 1939 we have seen four cases.

These parasites are found both in the red cells and outside in the plasma. These bloods usually have an appearance that is suggestive to the experienced technician. The blood, even in the counting chamber, has a dirty, trashy appearance and the smears suggest carelessness in preparation even when one has been meticulously careful. Almost never are they found with a normal count and ap-

pearance. The average specimen will show about 80 per cent hemoglobin and three and one-half million to four million red cells.

The results of treatment with quinine are startling and very gratifying to the patient, as they begin to feel better the first week and in a month are a new person. Our usual procedure is to give 15 to 20 gr. per day for two to three weeks, if well tolerated, then drop to 12 gr. until no parasites can be found. This usually requires one to two months and sometimes longer. The blood should be checked monthly for two or three months after quinine is discontinued. We have tried atabrine in a few cases without any results, but not enough cases to justify any positive statements. Plasmochin has been of some value, apparently, in clearing up a few cases where some forms of the parasites persisted after a long course of quinine. We hesitate to give massive doses of quinine as is often done in acute malaria as it has been our impression that a long course was necessary in these chronic types—but we may be wrong about this. Four gr. quinine plus ½ gr. amytal proved a good combination with some nervous cases.

Following are a few typical cases:

1. Mrs. H., age 22, married, house wife. Incipient tuberculosis. Positive sputum. Dec. 22, 1931. Hem. 85 per cent; R. C. 4 million; W. C. 7000; Polys. 80, S. L. 12; L. M. 4; Eos. 4. No malarial parasites found. Given pneumothorax, right lung, from December 31, 1931 to May 1932 with apparently perfect control of the tuberculosis but patient constantly complained of being "so tired" with aches and pains over the body and especially in the good lung. No chills and temperature never above 99. May 14, 1932 blood examination showed malarial parasites and under quinine treatment she made a marked improvement with relief of symptoms within a month. Completed her pneumo treatments in a neighboring city where she is living today.

2. Mrs. A., age 40, married, 3 children (next door neighbor to writer), came for examination October 17, 1933. Symptoms—Nervousness, loss of weight, pain between shoulders, tired all the time, slight cough and a little fever in afternoon. Unable to be out of bed all day. Anemic appearance. Complete check for tuberculosis made. No physical signs of disease in the chest but stereo-x-ray showed a minimal lesion which we later decided was a primary healed lesion. No other findings except malarial parasites in blood. Blood, Hem. 60 per cent; R. C. 3 million; W. C. 7000. This patient was placed on bed rest. She had been advised by family physician in childhood never to take quinine because of bad results at that time. We gave her atabrine tablets, three a day for ten days, iron and arsenic per hypo and ultra violet light treatments. November 6, 1933 she went to Boehne Tuberculosis Hospital for a check up by Dr. Paul Crimm. Their blood examination showed—Hem. 65 per cent; R. C. 2,800,000. Diagnosis: Inactive tuberculosis and chronic malaria. Returning home, she decided to try quinine as other treatment was not producing any results. Prescribed quinine hydrochlorid gr. 4 and amytal gr. ½ in capsules; giving 4 to 5 capsules daily without trouble. Nervousness decreased and improvement little short of miraculous. Started quinine November 18th and December 4th—Hem. 80 per cent and R. C. 4 Million. December 28th she left for Florida with 14 year old son, driving her own car. Continued quinine most of winter and has been well since. Parasites were found in the blood of three other members of this family.

3. Dr. G. C. Johnson, writer of this article, always had excellent health, never any chills and fever. Age 52 at this time. Height 70 inches, weight 180 pounds. Had not been feeling very energetic during the summer and fall and because of malaria next door and many mosquitoes, on November 16, 1933 had his assistant do a blood count which showed—Hem. 80 per cent; R. C. 4 million, with chronic type malarial parasites. Took one ounce of quinine sulphate the first month, when his blood showed—Hem. 90 per cent; R. C. 4,800,000; still a few parasites found. The second month one-half ounce of quinine was taken and January 15, 1934—Hem. 100 per cent; R. C. 5,200,000. No tonics or other medication taken. One year later his count was 5 million. April 21, 1939—Hem. 90 per cent; R. C. 5,1000,000; W. C. 5200. Incidentally, he screened his porch in the spring of 1934.

4. Carl E., age 43, married, School Supt. in neighboring county, came for examination May 9, 1936. Much worried because of family contact and complaining of pain in right lung and tired all the time. Blood—Hem. 90 per

cent; R. C. 4,500,000; Malarial parasites found. Five weeks quinine treatment relieved all symptoms and the parasites disappeared from the blood. Living out of the city, we did not get to make comparative blood counts in this case.

5. Mr. C. K., age 34, married, laborer. Came for examination October 22, 1935. Showed a minimal C tuberculosis of right upper lobe with very few signs of activity. Treated at Boehne Hospital for three years. Most of the time at home on rest cure. Sent to me again December 2, 1938 by an insurance company that was paying total disability claims, to determine ability to resume work. Examination indicated an arrested tuberculosis, but he was complaining of some pain in stomach and blood showed—Hem. 75 per cent; R. C. 3,800,000; W. C. 6400; Polys. 47; S. L. 48; L. M. 2; Eosin. 3. No malarial parasites found. Gave him Ferrous Sulphate daily for three weeks with no other treatment, when count was—Hem. 85 per cent; R. C. 3,700,000; W. C. 10,000; Polys. 25; S. L. 29; Baso. 2; Eosin. 44. Malarial parasites found at this time. Gave 15 gr. to 20 gr. quinine sulphate daily for three weeks with no other treatment when count was—Hem. 95 per cent; R. C. 4,400,000; Polys. 34; S. L. 41; Eosin. 25. No parasites found. Continued quinine, 12 gr. daily for another month to February 14, 1939 when Hem. was 95 per cent and R. C. 5 million; Polys. 43; S. L. 33; L. M. 3; Baso. 2; Eosin. 19. Few malarial parasites found.

February 20, developed influenza, in bed two weeks, slow recovery and March 31—Hem. was 90 per cent; R. C. 4 million; Polys. 50; S. L. 20; L. M. 3; Eosin. 26; Baso. 1. Few parasites found. Placed back on quinine, 15 gr. daily. Gave plasmochin during one two week period. The blood picture has been rather unusual, especially the eosinophiles, with no evidence of any allergic disease or parasites other than malarial.

April 25th after twenty-five days of 15 gr. quinine sulphate daily, Hem. 90 per cent; R. C. 5 million; Polys. 33; S. L. 39; Baso. 2; Eosin. 26. Numerous parasites still found and these were beautiful specimens with the typical coloring of the chromatin. One perfect signet ring found. The rapid increase of red cells is of special interest with no apparent decrease in number of parasites found. He is continuing quinine, which he takes without any trouble.

This paper is written with the hope of arousing the Tuberculosis Specialists in the malarial sections of our country. These infections are not recognized by many of the family physicians and ultimately patients come to the Tuberculosis Specialist because of their symptoms.

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VOL. V. OCTOBER, 1939 No. 10

DISEASES OF THE CHEST

MISSISSIPPI VALLEY STATES ISSUE
» » « «
IOWA SECTION

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The Tuberculosis Movement in Iowa

THE STATE LEGISLATURE, in 1904, passed a law directing the Board of Control to investigate the extent of tuberculosis in Iowa and the best means of prevention and treatment of the disease. This action had come about through the efforts of a group organized under the title of the "Iowa Society for the Study and Prevention of Tuberculosis." This organization, feeling that its objective had been obtained with the establishment of the State Sanatorium in 1908, ceased to function. In 1915, a committee which included many prominent physicians, started a movement for the organization of the Iowa Association for the Prevention of Tuberculosis. This organization, which is now known as the Iowa Tuberculosis Association, was formed in Des Moines in October, 1915, with the cooperation of the National Tuberculosis Association and the Iowa State Medical Society.

Over a number of years, the State Legislature appropriated $5000 to be used in the dissemination of information concerning tuberculosis. This fund was used to promote lectures on tuberculosis to the laity and to finance a tuberculosis magazine, *The Campaign*.

The Iowa Tuberculosis Association, as state agent for the sale of Christmas seals, began the organization of local committees to be co-responsible for the raising and spending of funds. Staff members of the Association have assisted liberally in the planning and execution of local work programs.

These programs, for a number of years, emphasized improvement of health as a preventive against tuberculosis. Local organizations sponsored child health service of various types and promoted public health nursing services. The Iowa Tuberculosis Association gave leadership to public health nursing programs by employing a director of public health nursing who subsequently was transferred to the Iowa Department of Health. The interest of medical men throughout the state was cultivated through clinics which in later years combined a study of heart conditions along with tuberculosis.

Until 1935, local organizations in charge of fund-raising and fund-spending consisted principally of Christmas Seal committees or committees of other organizations. In that year, an active program for the organization of formal county and regional tuberculosis organizations was begun. During the past four years, such associations have been established in 39 of Iowa's 99 counties. This has increased the extent and raised the level of work in the territory covered.

Building upon the local medical interest in tuberculosis developed through the years, and achieving finally the objective of working participation by the official health organization, the Iowa Tuberculosis Association and its local organizations in July, 1937, joined with the Iowa Department of Health in financing a joint tuberculosis control program. On the principle that contacts of cases are the most prolific source for new disease, this program seeks to obtain the examination of contact and suspect cases, through the cooperation of the family physician. Tuberculin tests are performed by him at the expense of the program, and x-rays are taken on a designated day. Interpretations are reported to the family physician who continues the program as his judgment directs. This joint program is administered by a full time medical director whose staff includes a supervising nurse, x-ray technician, and four field nurses.

The Iowa Tuberculosis Association has had exceptional leadership, both medical and lay. In the medical groups, the second president, Dr. Walter L. Bierring, is now State Health Commissioner. Dr. John H. Peck, third president, is now superintendent of the State Sanatorium.

To keep up with the needed facilities for institutional treatment, there are five institutions for treatment of the tuberculous in addition to the State Sanatorium. One of these, the Sac & Fox Sanatorium is devoted to the care of Indians; the other four are county institutions, located in the counties of Polk, Dubuque, Wapello and Scott. All, except the Polk County Hospital, are open to residents of other counties or states when vacancies are available. In addition, the Veterans' Facilities at Des Moines has a number of beds for tuberculous patients.

There are approximately 250 beds for the care of the tuberculous in other institutions under the State Board of Control, thus Iowa has attained the requisite number of at least two beds per annual death, and in 1938 the death rate in Iowa was the second lowest of the states.

TUBERCULOSIS PIONEERS IN IOWA

WALTER L. BIERRING, M.D.
1868 —

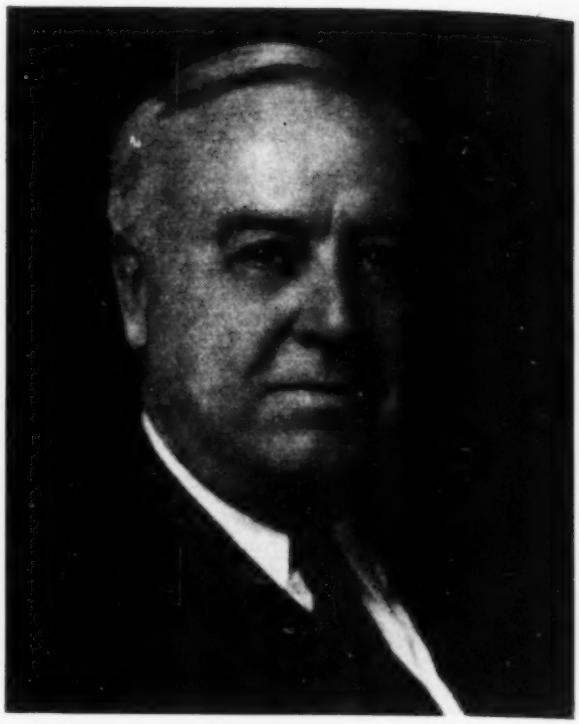
DOCTOR Walter Bierring was born in Davenport, Iowa on July 15, 1868 of Danish parents. He attended the Davenport High School and the University of Iowa, obtaining his degree in medicine from the University in 1892. He later went on and took graduate courses in pathology, bacteriology and internal medicine at the University of Vienna, the University of Heidelberg, and the Pasteur Institute of Paris.

At different times, Dr. Bierring taught at the University of Iowa and at Drake University, until the two schools merged in 1914. Dr. Bierring was also on the Iowa State Board of Health and Medical Examiners from 1914 to 1921, both as member and president. He then went to the National Board of Medical Examiners, where he held the positions of member, examiner, member of the executive committee, and president.

In 1919, Dr. Bierring was appointed a member of the Commission to study Medical Education and Qualifying Methods in France and Great Britain. He was also a member of the Medical Advisory Committee for the Social Security Act from 1934 to 1936. Among the other offices held by him, were the presidency of the A. M. A., 1934-35; State Commissioner of Health, 1933; Chairman, American Board of Internal Medicine, and Frank Billings Lecturship. Then, too, in 1918, he was president of the Iowa Tuberculosis Association.

Dr. Bierring is an Honorary Member of the Royal College of Physicians, a member of the Alpha Omega Alpha Medical Honorary Society, and an Honorary Member of the Phi Beta Kappa Society, a Fellow of the American College of Physicians, a Fellow of the American Association for the Advancement of Science, and a Fellow of the American Public Health Association.

Dr. Bierring has published some ten books on varied aspects of medicine—all well received. He was also, in the year 1894, the first man to prepare Diptheria Anti-toxin in Iowa. His record speaks for itself—and eloquently.



JOHN H. PECK, M.D.
1879 —

AFTER graduating from the University of Iowa College of Medicine in Iowa City in 1909, Dr. John H. Peck spent one year as assistant in the College of Medicine. Later, he moved to Des Moines where he was associate professor of medicine in Drake University, leaving when the medical school was discontinued. He then turned to private practice, specializing in tuberculosis.

During the World War he was chief of the tuberculosis service at the base hospitals of Camp Dodge and Fort Des Moines, with the rank of major. He is a member of the American Legion, the Association of Military Surgeons, and the Medical Veterans of the World War.

In 1912, he spent several months as resident physician at the State Sanatorium at Oakdale, to which place he has now returned. His long years of intensive study and practice in the treatment of tuberculosis have won him such honors as the presidency of the Iowa Tuberculosis Association for sixteen years, the presidency of the National Tuberculosis Association in 1932-33, the presidency of the Polk County and Iowa State Medical Societies, and the Mississippi Valley Conference on Tuberculosis, in addition to offices in almost innumerable smaller organizations. He is now a Fellow of the American College of Physicians and president of the Iowa Sanatorium Association, president-elect of the American College of Chest Physicians, and a member of the American College of Hospital Administrators.

He was a pioneer in the organization of the Iowa Tuberculosis Association; has been a member of the executive committee of the National Tuberculosis Association for years, as well as being on the executive committee of the Iowa Tuberculosis Association over a long period. In 1932, he was a delegate to the International Union against Tuberculosis at The Hague, Holland.

He had much to do with the formation of Broadlawns Tuberculosis Sanatorium in Des Moines of which he was medical director for

(Continued to page 45)

Iowa Sanatoria

STATE SANATORIUM

OAKDALE, IOWA

THE 280 acres of farm land on which the State Sanatorium is located were purchased by the State of Iowa through the Board of Control of State Institutions, and the institution was opened February 1, 1908. It is located in the east central section of the state, 22 miles from Cedar Rapids and six miles from Iowa City. The Cedar Rapids and Iowa City Interurban Railway runs through the grounds.

The close of the first biennial report showed a patient population of 43. Now, by the erection of additional buildings, the institution accommodates 422 patients, and over 200 employees. It is open to all bona fide residents of Iowa who have pulmonary tuberculosis in need of active treatment.

In the fall of 1937, a new administration and admission building was opened, connected with the old hospital. The institution is fully equipped with modern x-ray equipment; also with facilities for minor and major surgery, bronchoscopy and pneumonolysis. An electrocardiograph recently has been installed. A staff of six alert physicians, well trained in tuberculosis is maintained, as well as a resident physician.

Over 37 per cent of the employees are former patients who are thus given an opportunity to rehabilitate themselves.

The present superintendent and medical director, since 1936, is Dr. John H. Peck.

SUNNY CREST SANATORIUM

DUBUQUE, IOWA

SUNNY CREST Sanatorium, a county institution for the treatment of pulmonary tuberculosis, was opened in August, 1921, with a capacity of thirty-five patients. Need for expansion later became evident and in 1926 a nurses' home and doctor's residence were built, opening up more rooms for patients. Still later, sanatorium facilities were not found adequate for the demands made upon them and an addition was built in 1931, increasing the bed capacity to seventy.

Sunny Crest is ideally located, being within the city limits and readily accessible, yet sufficiently isolated from the noises and distractions of the city. Situated on a bluff overlooking the Mississippi River and commanding a view of the states of Illinois, Wisconsin and Iowa, surrounded by natural scenic beauty, Sunny Crest appeals to the aesthetic as well as the physical sense.

Sunny Crest has had but one medical director since its opening in 1921, Dr. J. Carl Painter. All kinds of modern equipment used in the treatment of tuberculosis today are available at Sunny Crest Sanatorium.

Iowa Sanatoria

SUNNY SLOPE SANATORIUM

OTTUMWA, IOWA

IN 1915, a survey of the orphans in Wapello County disclosed the fact that 50 per cent was due to tuberculosis. Some of the doctors and a group of lay persons began to think in terms of sanatorium care.

In July, 1916, for $5,000.00, the county purchased seven acres of ground one quarter of a mile from the city limits of Ottumwa, Iowa. On September 21, 1916, the first patients were entered, seven in number. The following year it was enlarged to care for fourteen patients. By 1934 it had grown to accomodate 65 patients and additional ground was purchased.

In 1935 a Children's Building was erected to care for thirty-five children, mostly Orthopedic. Here they receive schooling as well as hospital care. This makes a total bed capacity of 100.

Through the kindness of civic groups, mostly the Elks Lodge, nine cabins have been built and since 1930 a Summer Health Camp has been conducted, caring for 50 undernourished children. Many are from contact homes. This year a nurses' home has been completed with the aid of the Public Works Administration.

The Staff consists of Medical and Assistant Medical Directors, Pediatrician, Eye, Ear, Nose, and Throat Specialists, Dentist, and Radiologist, also seven Consultant Doctors, a Technician, and Dietitian.

A large clinic is held in May and regular out-patient service throughout the year, also follow up social work to discharged patients. The standard procedures for the treatment of tuberculosis are followed, including surgical collapse therapy. While patients are accepted from all over the state, preference must be given to Wapello County. Dr. G. Raymond Johnson is the Medical Director.

BROADLAWNS TUBERCULOSIS HOSPITAL

DES MOINES, IOWA

BROADLAWNS Tuberculosis Hospital is ideally located in the north central part of the city of Des Moines about three miles from the business district. It is faced on the south by spacious lawns. On the north there is a large area of native timber extending to the south bank of the Des Moines River.

The main building, having a capacity of 60 beds was opened in April, 1924, and was soon filled to capacity. The next year a west wing with 40 beds was added, providing a total capacity of 100 beds.

The institution is equipped with modern laboratory and x-ray facilities; also operating room for the various forms of collapse therapy. However, major surgical cases are referred to Broadlawns General Hospital or to a private hospital.

An out-patient department is maintained for patients requiring prolonged pneumothorax therapy and supervision, but who are not in need of actual institutional care.

Beautiful grounds, comfortable room furnishings, together with an excellent morale maintained by those who minister to the patients provide ideal surroundings for those who spend long months of cure-taking here.

Administration of the hospital is conducted by a Board of Trustees through Mr. T. P. Sharpnack, administrator of the Polk County Public Hospital. Dr. John Russell is chief of the tuberculosis service.

Iowa Sanatoria

PINE KNOLL
SCOTT COUNTY TUBERCULOSIS SANATORIUM
DAVENPORT, IOWA

AT a meeting of the Board of Supervisors of Scott County held January 26, 1912, a Board of Hospital Trustees was appointed to arrange a Scott County Public Hospital for the treatment of pulmonary tuberculosis and was granted the sum of $50,000 to purchase a site and erect a Sanatorium. The first name of Scott County Public Hospital was later changed to Pine Knoll Sanatorium to avoid confusion with the already existing County Home.

The Board decided on the present tract, which at present, consists of fifteen acres and is situated on a beautiful knoll, twenty-five blocks west of the business district of Davenport.

The Sanatorium was opened in July, 1914 with sixteen patients. By July 1917, an average of forty patients were being treated.

As the number of patients and the number of days the patients remained in the institution increased, it became apparent that special facilities to separate the sick from the convalescent were necessary. Adequate care could not be given advanced patients on the porches, so it was deemed advisable to construct a building of the General Hospital type. This was done in 1925. A three story addition to the north connected with the original building was built, which included

(Continued to page 45)

SAC AND FOX SANATORIUM
TOLEDO, IOWA

THE Sac and Fox Sanatorium was established in 1912 by the Indian Bureau of the Department of Interior, one mile west of Toledo, Iowa, for the treatment of Indians suffering from Tuberculosis.

It has a capacity of 74 and draws patients from Indian reservations in the states of Wisconsin, North Dakota, South Dakota, Nebraska and Iowa.

The present superintendent, Dr. Ira D. Nelson, was appointed several years ago.

The Influence of a Sanatorium on a Community of Sixty Thousand

J. CARL PAINTER, M.D., F.A.C.P.*
Dubuque, Iowa

THE RESULTS of the methods of tuberculosis control applied in any community must be judged largely by the reduction in the mortality rate in that particular community. If the influence of a sanatorium in a community is to be measured by the reduction in the death rate in that community, it is desirable to separate the results of the work done by the institution in question from the work done by other organizations in the same community.

Dubuque County, Iowa, has a population of 61,193. In this county is a city of 41,678 people. Sunny Crest Sanatorium was opened to receive patients from this community in 1921, and, during the seventeen years since it was established, the effort directed from this institution has been the primary influence exerted toward the control and eradication of tuberculosis in Dubuque County.

The Dubuque Visiting Nurse Association has given hourly nursing care to certain patients who for various reasons did not wish to avail themselves of the opportunity for care in the sanatorium. They operated a fresh air camp during the summer where children were cared for a few hours of the day, but, until the year 1938, no definite effort at tuberculosis control other than that incidental to their regular nursing duties was made by this association. However, a more definite program is now being worked out, mention of which will be made later in this paper.

Family physicians in Dubuque County have assisted nobly in this control program, not as an organization or through any organized effort of their own, but through added assistance as individual physicians to the program initiated by the sanatorium.

When Sunny Crest Sanatorium was opened in 1921 an attempt was made to start a series of clinics throughout the county. A request for endorsement for the holding of these clinics by the sanatorium physician was flatly refused by the Dubuque County Medical Society. Neither did the members of the Society take kindly to an outpatient nursing service operated from the sanatorium. At that time, this refusal was a bitter disappointment to the management of the sanatorium.

To be effective, control measures must be based upon the full co-operation between the family physician and the sanatorium. When sick and in need of advice in health matters, people seek the help of the family physician first of all. Only through his counsel to the families under his care can any method of fighting tuberculosis be made effective.

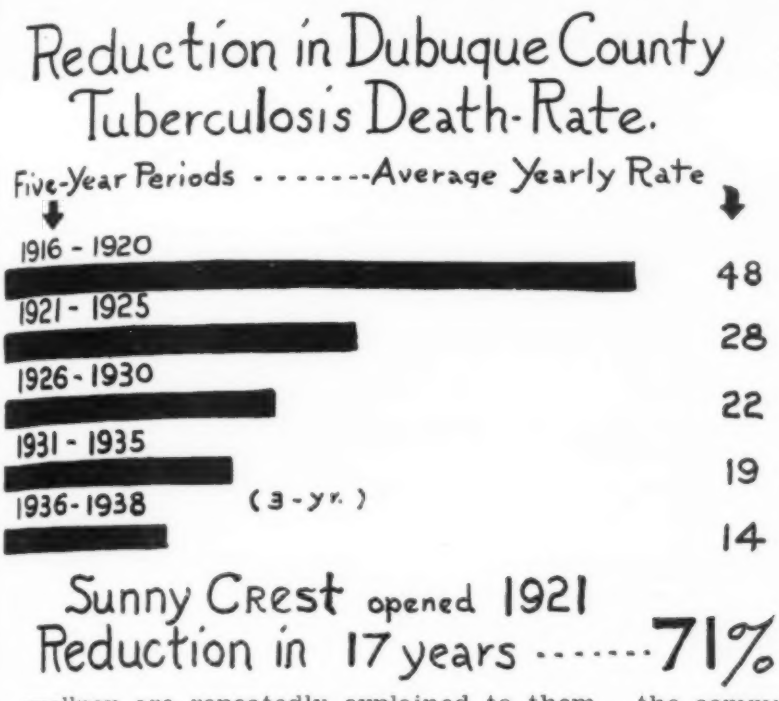
With a full realization that an official and organized effort of the physicians could not be obtained at that time and that we had to have their co-operation as individual physicians, we decided upon another method of approach to the problem, a method which seemed the most satisfactory at that time and one which has proven its definite worth over a period of seventeen years. Further details of this plan will be given later in this paper.

A study of the mortality rate from tuberculosis in Dubuque County for the past twenty-two years was made. This study was made primarily to learn more concerning the degree of influence this institution has had upon the control of tuberculosis in this community. The following graph gives evidence of rather pleasing results.

The average yearly mortality rate in the five years, 1916-1920, immediately previous to the opening of the sanatorium in 1921, was forty-eight, with a gradual reduction to a low average of fourteen in the years 1936-1938, a reduction of 71 per cent in seventeen years.

Many causes might be advanced to account for this marked reduction in the mortality rate in Dubuque County. We might say that the whole nation has become more health-minded. People are hearing constantly how they may prevent disease. Methods of immunization against typhoid, diphtheria, and

* Medical Director, Sunny Crest Sanatorium.



smallpox are repeatedly explained to them. They are told if they eat properly and get more sleep that their resistance against disease will be greater. All this general health information no doubt has had some effect upon the general mortality rate and upon the incidence of tuberculosis as well.

The fact still remains, however, that the only direct and organized effort for the control and eradication of tuberculosis in Dubuque County emanated from within the walls of Sunny Crest Sanatorium, and we feel that these efforts during the past seventeen years were largely responsible for the results obtained.

What are some of the things which we feel made this effort a success?

1. *The Co-operation of the Family Physician:* We have had the finest co-operation from the family physician. From the beginning he has been encouraged to believe that the sanatorium wished only to be of assistance to him in caring for his tuberculous patients. A consultation service was offered to him. He was encouraged to bring his doubtful or borderline cases to the sanatorium for examination and opinion. He was given to understand that here the best x-ray and laboratory facilities were available to assist him in making a correct diagnosis. He was called in consultation whenever a patient of his developed a non-tuberculous complication of a serious nature. The sanatorium physician treated no patients outside of the sanatorium and made no calls on patients in the home unless in the company of the family physician.

By these and many other means a relationship of close co-operation was established between the Dubuque County physicians and the sanatorium.

2. *Patients in all Stages of the Disease were Admitted to the Sanatorium:* A few sanatoria may be found that feel justified in accepting as patients only early or so-called favorable cases. It seemed to us, however, in a tax-supported institution that we owed to the community as a whole an honest effort to control and eradicate tuberculosis as well as to treat only those individual patients in whom a cure might be more easily obtained. We felt that all cases who had a sputum positive for tubercle bacilli should be ISOLATED and TREATED.

Tuberculosis is a communicable disease transmitted from one person to another by means of the tubercle bacillus, and no control measure can be really effective until every spreader of the disease is isolated in a sanatorium and treated. From the community standpoint the treatment to be desired is to make this patient sputum-free and no longer a menace to the community. From the standpoint of the individual alone the treatment should be to make him a cure so that he can enjoy living. The result is the same in either case, only approached from a different angle. For complete success of the control program sanatoria must admit patients in all stages of the disease and make every effort to rehabilitate and make of them safe and useful citizens.

3. *Use of Collapse Therapy:* The use of collapse therapy has been the most valuable single factor in the fight against the spread of tuberculosis. By its use areas of diseased lung from which tubercle bacilli are being constantly extruded are completely closed, thus enabling patients under this form of treatment to associate with their friends and

work among their associates without endangering those about them. Many of these patients who would otherwise be in the sanatorium a long time and fill a bed which could be used by another patient, are with the aid of pneumothorax, able to carry on a gainful occupation or to be at home with their families.

Collapse therapy has increased the turnover of beds at Sunny Crest Sanatorium very materially. During the year 1938, forty-eight patients were able to live outside the sanatorium in their own homes, returning to the sanatorium only at stated times for their pneumothorax treatments. Some carried on a gainful occupation; some were in school; some were mothers managing their homes and families. They were all sputum-free and were only waiting for time to permanently heal their lesions. These patients discharged to their homes, while still under treatment, vacated many beds for others who needed them. Some patients were made sputum-free and available for discharge by the use of other types of surgery, such as extra-pleural thoracoplasty.

4. *Examination of any Person making Request:* Any person who has presented himself at the sanatorium and requested a chest examination has been given this service. The sanatorium has equipment such as x-ray, adequate laboratory facilities, etc., necessary to make a chest diagnosis. In every case examined, an effort was made to have the patient name a physician to whom a detailed report of his condition could be made. This out-patient service has developed and increased until an average of one hundred and eighty people take advantage of it yearly. Some are referred by physicians while others come without reference.

5. *Education about Tuberculosis:* Every visitor, friend or relative who comes to the sanatorium takes away with him knowledge gained by observing the institution, the other patients, their routine, what they eat, how much they rest, what special treatment they have, and what is being done to assist in their recovery. If they are observing people, they will note what is being done to protect other persons from infection. A knowledge of these and many other things they unconsciously absorb and may later put to good account for themselves. Other members of the patient's family ask questions of the physician in charge and learn how to prevent the spread of the disease.

The medical director of the sanatorium took advantage of opportunities offered to address service clubs, parent-teacher associations, to lecture on tuberculosis at the training schools of the two general hospitals and to many other public audiences, always carrying the message of how to prevent the spread of tuberculosis.

6. *Good Will of the Community:* In all of our work we feel that we have had the good will and support of the community. The citizens have had confidence enough to utilize the facilities offered and have made use of the institution as their own.

During the year 1938 the Dubuque Visiting Nurse Association, the Iowa Tuberculosis Association, and the Iowa State Board of Health jointly conducted a survey of tuberculosis in Dubuque County.

Mortality and morbidity records of the county for the past seventeen years were studied; all known cases were investigated; contacts were given the Mantoux test and the positive reactors were x-rayed. The result was that no new case of active tuberculosis was discovered and no unknown case of active tuberculosis was found in this survey.

Following up this survey a real piece of work is being done quietly, diligently, and still very efficiently. The Visiting Nurse Association now has an out-patient nursing service which carries on the follow-up work. They have the files and records as left by this survey and will keep up contact with discharged sanatorium cases and contacts of all people known to have tuberculosis. A definite co-operative program of control is being fostered between the Visiting Nurse Association and the sanatorium and we are hoping for great things to come of it.

Conclusion

A review of the mortality records of Dubuque County for twenty-two years shows a reduction of 71 per cent in the mortality rate since the establishment of Sunny Crest Sanatorium in Dubuque County in 1921.

Due to factors over which we had no control our program for the control of tuberculosis

was limited to what could be accomplished without the aid of an officially constituted out-patient department.

The results obtained, we feel were due to:

1. Co-operation of the family physician.
2. Admission of patients in all stages of the disease.
3. Use of collapse therapy in the out-patient department.
4. Examinations at the sanatorium of patients from outside.
5. Educational program.
6. Goodwill of the community.

PINE KNOLL — *(Continued from page 41)*

a new kitchen, dining room for nurses, patients and help, and two floors for the very sick patients.

Many children were seeking admission, either on account of active disease or contacts. It was not advisable to admit children with adults for various known reasons, so a children's ward was added to the west of the original building, the lower floor for boys, the upper floor for girls. This addition was of the single large room type hospital with thirteen beds on each floor and adequate separate toilet and dressing facilities.

The Sanatorium is well equipped. It has an x-ray, fluoroscope and a well equipped laboratory where sputum, blood counts, sedimentation tests and Kahns are done routinely. A Carbon Arc lamp of 220 volts capacity has displaced the Quartz type of lamp formerly used. However, the Quartz light is still used, where desirable.

The present capacity, after the above additions and improvements, is 111 patients. The average attendance is about equally divided as to sex.

A total of 3929 patients have been admitted since the institution opened its doors. A total of 978 patients have been discharged as apparently arrested cases and many have left greatly improved, but before sufficient time had elapsed to be classified and discharged.

Dr. R. P. Carney is the medical director.

JOHN H. PECK, M.D. — *(Continued from page 38)*

several years.

Of wide importance during many years, was his work as clinician for the Iowa Tuberculosis Association when he covered the state of Iowa by clinics, demonstrating the technique of the recognition and treatment of tuberculosis before medical and social groups. This work was discontinued when he accepted the superintendency of the State Sanatorium in 1936.

Despite an extensive private practice, he found time to encourage and stimulate the study of tuberculosis, not only in the clinics, but in his capacity as an interesting and forceful speaker. While the pressure of his work at the State Sanatorium now prohibits many public appearances, he is still much in demand as an expounder of the latest and newest methods of treatment.

In 1936 he was appointed superintendent of the State Sanatorium at Oakdale, which, due to his unusual gift for organization, is becoming more and more an alive and vital institution. His chief project is the promotion of instruction in tuberculosis to senior medical students of the State University of Iowa College of Medicine. He has worked out a comprehensive course of study whereby senior medical students, who are required to spend two full weeks at the sanatorium in clinical clerkships, receive a thorough and extensive course in the practical diagnosis and treatment of tuberculosis. It is his hope that eventually every medical school in the country will furnish its senior medical students a similar course.

Through his wise counsel and generosity of time and effort, he has helped make Iowa the tuberculosis-conscious state that it now is, as shown by the fact that in 1938 Iowa had next to the lowest death rate of any state in the Union.

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VOL. V. OCTOBER, 1939 No. 10

DISEASES OF THE CHEST

MISSISSIPPI VALLEY STATES ISSUE
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WISCONSIN SECTION

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The Tuberculosis Movement in Wisconsin

THE WISCONSIN Anti-Tuberculosis Association has established an imperishable reputation in the organized campaign against tuberculosis in the State of Wisconsin. Its history dates back to October 28, 1908. Throughout its thirty years of service to the public, its basic purposes, namely, the investigation of the prevalence of tuberculosis in the state, the collection and publication of useful information regarding the same, securing legislation for the relief and prevention of tuberculosis, co-operation with national, state, and local health organizations for the adoption of appropriate measures against this disease, the education of competent field workers for anti-tuberculosis work, and concerted efforts for the establishment of more, better and larger tuberculosis institutions—have met with uniform recognition by national public health authorities, and served as a model for similar organizations all over the country.

Nothing can demonstrate better the value and success of the work of the Wisconsin Anti-Tuberculosis Association than the fact that in 1908 there were less than 100 beds for the tuberculous in three sanatoriums in Wisconsin, while today there are 2,414 beds (not counting those at the Veterans' Hospital) in 23 institutions. Expressed in other terms, in 1908 there was one sanatorium bed for every twenty-five deaths, in 1938 (less than 1000 deaths out of a population of about 3,000,000) there were more than two beds for each death from tuberculosis.

There is no doubt that the untiring efforts of the members of this organization brought about advances in tuberculosis work that place Wisconsin in the front rank, not only statistically, but in the introduction and popularization of modern methods of diagnosis and treatment.

To Dr. Hoyt E. Dearholt, who was a nationally known authority on the public health aspects of tuberculosis, and who had been Executive Secretary of the Wisconsin Anti-Tuberculosis Association from the time of its organization until his death, should go the lion's share of credit for bringing to a successful fruition the campaign against tuberculosis in Wisconsin.

The Wisconsin State Board of Health

THE July-September, 1939, Bulletin of the Wisconsin State Board of Health announces; "that under the terms of a law published July 15, 1939, general supervision of state and county tuberculosis sanatoria, and sanitary supervision of county and municipal charitable, curative reformatory and penal institutions have been transferred from the State Board of Control to the State Board of Health."

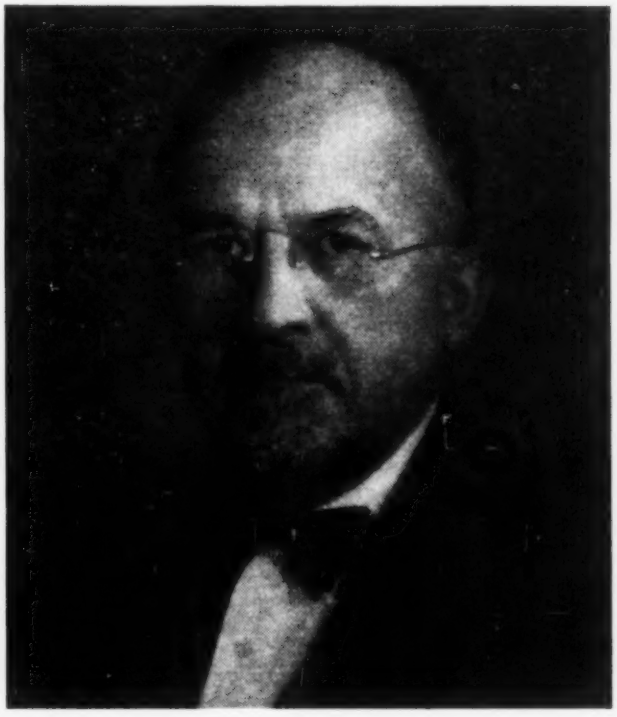
The Bulletin further states; "that Wisconsin's prevention program is based on the conviction that every child who has reached the age of twelve years should receive the tuberculin test. More than 50,000 rural Wisconsin children received the tuberculin test last year. The state's urban population is approximately the same as the rural, and similar activity against tuberculosis is reported from the cities. This fight is going on steadily with heartening results."

The front cover of the Bulletin carries the following report:

TUBERCULOSIS IN WISCONSIN

Year	*Reported Cases*	*Deaths*
1910	1270	2404
1915	1765	2310
1920	1774	2243
1925	1857	1736
1930	1976	1514
1935	1967	1057
1938	1760	899

TUBERCULOSIS PIONEERS IN WISCONSIN



J. W. COON, M.D.

1860 - 1934

ONE of the early pioneers in the fight against tuberculosis, Dr. Coon was born in Bloomfield township, Waushara County, 1860. In 1880, he began his medical education under the direction of Dr. N. M. Dodson, of Berlin, Wisconsin. later entering Jefferson Medical College, Philadelphia, from which he received his degree in 1884.

Returning to Wisconsin, he practiced at Montello and Tomahawk until 1892, when he moved to Milwaukee to become registrar of vital statistics of the Milwaukee Health Department, where he remained until 1902.

He also served as professor of hygiene in the College of Physicians and Surgeons, at Milwaukee. From 1906 to 1908, he was superintendent of the Milwaukee County Hospital and from 1909 to 1915 he was in charge of the Wisconsin State Sanatorium at Wales.

He was one of the original directors of the Wisconsin Anti - Tuberculosis Association and served on its executive committee until 1933. From 1915 to 1917, he left Wisconsin to assist in the organization of the Chicago Municipal Tuberculosis Sanitarium. In 1917, he returned to Wisconsin and became Medical Director of River Pines Sanatorium, which position he held until his death in 1934.

HOYT E. DEARHOLT, M.D.

1879 - 1939

DOCTOR Hoyt E. Dearholt, executive secretary since 1910 of the Wisconsin Anti-Tuberculosis Association, died in Milwaukee on July 12, 1939. The story of the Association and the building up of Wisconsin's tuberculosis control program is, in large part, the story of his life.

Dr. Dearholt's active participation in the anti-tuberculosis campaign antedated the organization of the W. A. T. A., however. It went back to the early nineteen hundreds, when, as a young orthopedic surgeon (the first in Milwaukee), he saw a long line of helpless young lives crippled by tuberculosis. Together with other enthusiastic Milwaukee physicians, he began a crusade in the Medical Society of Wilwaukee County which led, with other local and state movements, to the organization of the W. A. T. A., on October 28, 1908. He was appointed its first publicity chairman and in 1910 became its first executive secretary.

Today, the Wisconsin association has the largest staff among the state tuberculosis associations of the country, with departments devoted to medical and clinic work, social service, public health nursing demonstration, health education, exhibits, statistical research, sanatorium consultation, and many other activities. When the W. A. T. A. was organized in 1908, Wisconsin's death rate was 109 deaths per 100,000 population, and its sanatorium capacity approximately 100 beds; today, after 30 years of intensive campaigning, the death rate is under 30, and the sanatorium beds total nearly 2500. Most striking, perhaps, of all the services initiated and developed under Dr. Dearholt's leadership were those *demonstrated* by the association and since taken over publicly by the tax-payers; public health nursing, for example, which now embraces hundreds of nurses in the state, and which has largely grown out of demonstration and training facilities set up

(Continued to page 62)

Wisconsin Sanatoria

RIVER PINES SANATORIUM

STEVENS POINT, WISCONSIN

IN 1906, Dr. Thomas H. Hay and Dr. Hoyt E. Dearholt, of Milwaukee, established River Pines in a pine grove on the bank of the Wisconsin River, three miles from the city of Stevens Point. The sanatorium opened with twelve beds. At present it has beds for sixty-two patients. On September 1, 1938, River Pines was taken over by the Sisters of St. Joseph, who now own and manage this pioneering institution.

The institution now consists of the administration building, three large dormitories, a club house, seven cottages, two private residences, and a garage with quarters for the male help.

The history of River Pines is closely wrapped up with the history of the fight against tuberculosis in Wisconsin and adjoining states. It has the distinction of being the first of the existing sanatoria in Wisconsin. Since its establishment there have been admitted patients, not only from the Mississippi Valley States, but also from the metropolitan cities as far east as New York and Pennsylvania; west as far as Colorado and California; south as far as Alabama, and north as far as Alberta, Canada. One patient was from Australia.

Close supervision is given by a resident medical staff and competent registered nurses. Dr. T. L. Harrington is the medical director.

For further information write to Sister Mary Cherubim, Superior in Charge, or Dr. T. L. Harrington.

MORNINGSIDE SANATORIUM

MADISON, WISCONSIN

MORNINGSIDE Sanatorium was built and has since been operated by the Madison Anti-Tuberculosis Association. The necessary funds were provided by a gift from Dr. C. H. Vilas in memory of his mother.

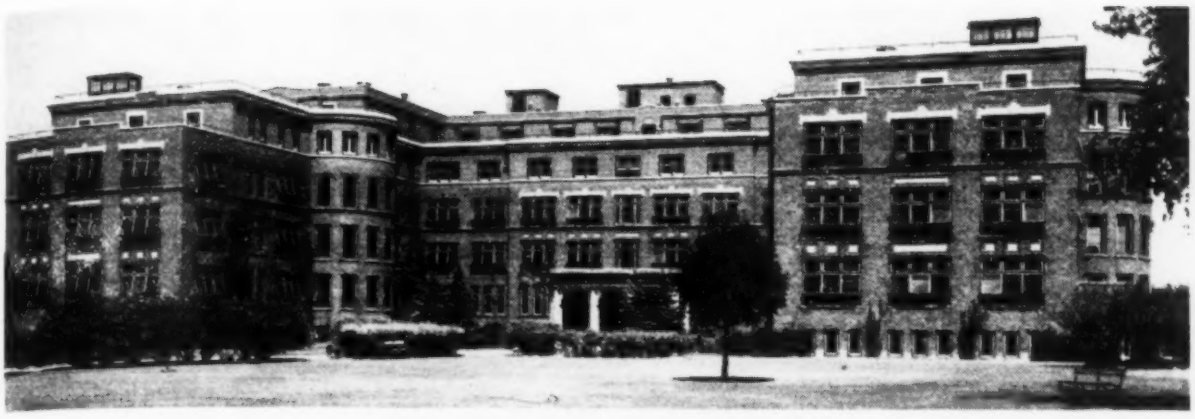
It is beautifully located in an oak grove. A southeastern exposure on a hillside gives protection from the winter winds and an outlook over an open country with one of Madison's four lakes in the distance. Dr. L. R. Head was its first Medical Director.

It is of the cottage type, which arrangement permits the desirable orientation of the rooms to the maximum amount of sunlight and air exposure.

Although the institution has been in use for a number of years, its appointments have been kept up to date and everything is in the best of condition. New x-ray and clinical laboratories have been equipped with all necessary appliances to do the best of work. Morningside is fortunate to be situated in a medical center like Madison where every facility is easily available. The children's unit is completely isolated from the quarters for the adults. The cuisine is excellent. Every effort is made to secure the atmosphere of a home, rather than that of an institution.

Dr. M. H. Wirig is the physician in charge. Mrs. S. Stoeber Snyder, R.N., is the superintendent who may be addressed for further details.

Wisconsin Sanatoria



MUIRDALE SANATORIUM
WAUWATOSA, WISCONSIN

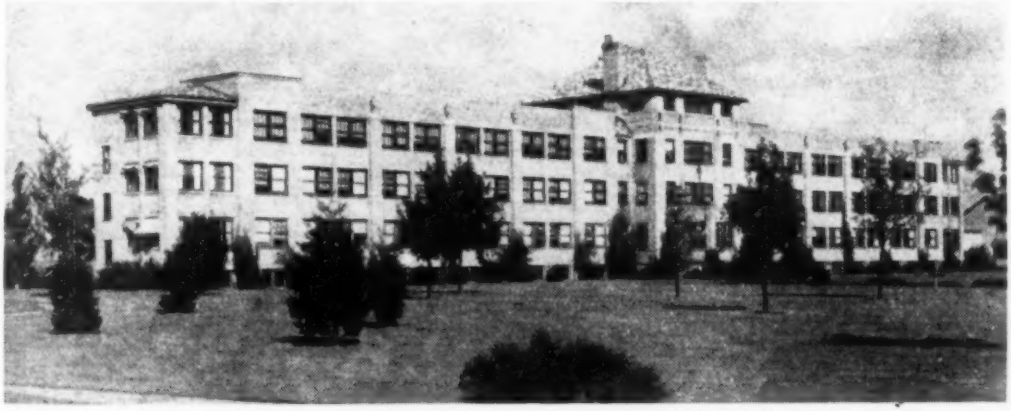
MUIRDALE Sanatorium is one of the group of Milwaukee County Institutions, located in the Town of Wauwatosa, seven and one-half miles from downtown Milwaukee. The sanatorium is named in honor of John Muir, Wisconsin naturalist and exponent of "open air" living. More than 11,000 patients have been admitted since its opening date, November 15, 1915.

Ten buildings comprise the sanatorium, i.e., the main, five-story hospital and administration building, four forty-patient cottages, a cottage for children, nurses' home, staff cottage, power house and superintendent's residence. The present capacity is 500 beds.

The Occupational Therapy Department established in 1915 has attracted nation-wide attention and is considered a model of its kind. Patients on medically prescribed exercise engage in Americanization schoolwork or in light industrial occupation in the shops while interesting bedside instruction in simple arts and crafts occupy the attention of selected bed patients for short periods of time each day.

Muirdale extends its service to patients outside the sanatorium through the operation of an outpatient department with offices at the County Dispensary, located in Milwaukee. In addition to diagnosis, follow-up examinations, and consultations, a pneumothorax clinic is now in operation which permits selected patients to leave the Sanatorium and continue periodic refills at the Dispensary. A corps of tuberculosis trained nurses supervise the continued treatment of these patients in their homes; contact, advise, and assist applicants in securing admission to Muirdale, and do follow-up work on all discharged cases from the Sanatorium.

In the year 1920 there was added to Muirdale Sanatorium by purchase from the City of Milwaukee the Blue Mound Sanatorium, a 100 bed institution of the cottage type, located on the Blue Mound Road about one mile distant from Muirdale. This institution has since been converted into a preventorium. The present capacity of the preventorium is 136 beds.



PINEHURST SANATORIUM
JANESVILLE, WISCONSIN

PINEHURST Sanatorium, Rock County Sanatorium, is located three miles north of Janesville.

The sanatorium was opened to receive patients in May, 1929, and has a bed capacity of 70 patients. All types of tuberculosis are accepted.

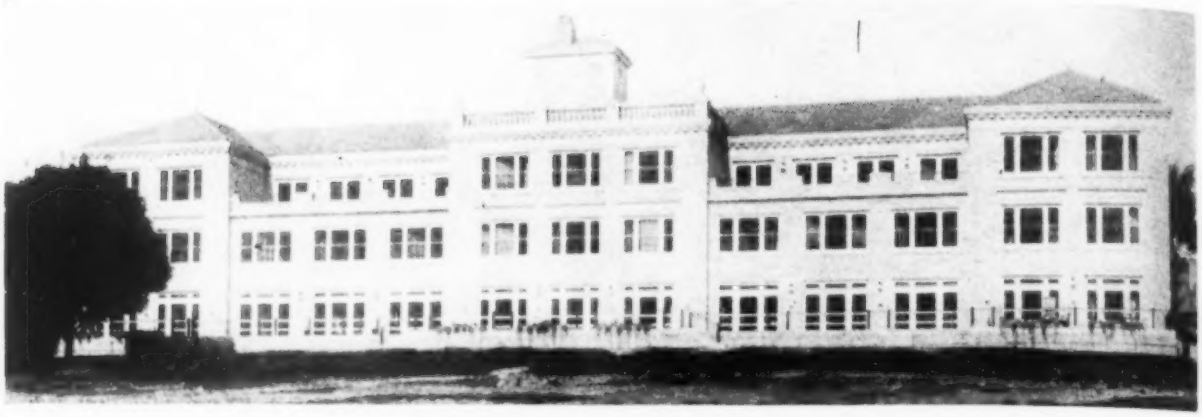
Dr. T. O. Nuzum is the medical director and Dr. H. Anderson is the resident physician. The members of the Pember-Nuzum Clinic of Janesville serve on the staff. All forms of surgery including various types of chest surgery are available to the patient.

Miss Iva L. Hartman, R.N., a graduate of Trudeau Sanatorium at Saranac Lake, New York, is the superintendent.

There is a complete x-ray and laboratory department with the services of a full-time x-ray and laboratory technician.

Pinehurst has an occupational-therapy department and an educational department—both supervised by an instructor. The outpatient department and follow-up work is carried on with the aid of a part-time social worker.

Wisconsin Sanatoria



THE WISCONSIN STATE SANATORIUM

STATESAN, WISCONSIN

NESTED back in the hills of Waukesha County, with a little over two hundred acres of wooded hillside, is the Wisconsin State Sanatorium. By no means an accidental location, this area in the kettle moraine region, combines natural beauty with a readily accessible isolation. The village of Wales, two miles south of the Sanatorium, furnishes the railroad facilities.

On this location, the State of Wisconsin has erected a rambling group of buildings, an administration building, which houses the offices, the power plant, furnishes light, heat and water, a refectory and dining room; a modern hospital building, furnishing 105 hospital beds; five 20 bed cottages, and one 40 bed cottage—which furnish another 135 beds for patients; an amusement hall, and staff and employee residences. Some of the buildings are old and vine covered, for the first patients were admitted here in 1907.

In 1929, a hospital building was built to replace the infirmary in use, and at this time a modern fireproof stone hospital building, providing for 105 patients, was erected, and in its erection proper facilities for laboratory and surgical equipment were made, so that this last building in the group represents as complete and satisfactory a hospital for the treatment of tuberculosis as is to be found in any of the institutions. With the changes following the completion of the infirmary, the bed facilities available consisted of 105 hospital beds, and 135 cottage beds, making a total capacity of 240 beds, which is the present capacity of the institution.

The Advisory Board chose as the first superintendent of the Wisconsin State Tuberculosis Sanatorium Dr. Chester A. Paull, who was at that time the first medical assistant at the Loomis Sanatorium, Liberty, New York.

The present superintendent is Dr. H. M. Coon.

SUNNY REST SANATORIUM

RACINE, WISCONSIN

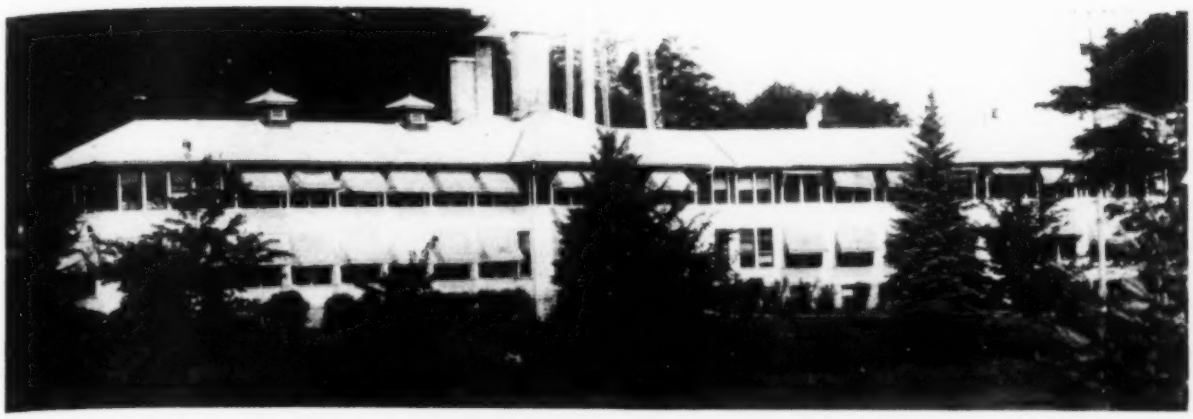
SUNNY REST Sanatorium, owned and operated by Racine County, and governed by a board of three trustees, was established in 1913 with a capacity of twenty-four beds.

Dr. Carl O. Schaefer is attending physician and surgeon. Miss Ella L. Neumann, R.N., has been the superintendent since 1926.

At the present time a new annex of thirty-five beds is being constructed under W.P.A., which will increase the capacity to approximately eighty beds. The present capacity of the sanatorium is fifty beds.

All types of surgery are performed at the Sanatorium, and all types of tuberculosis are accepted except the childhood type, as there are no special facilities for children.

Wisconsin Sanatoria



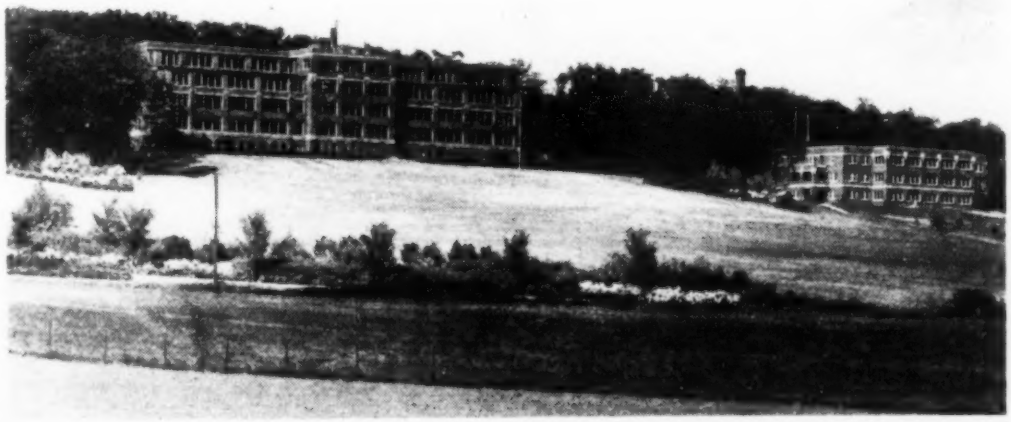
MAPLE CREST SANATORIUM

WHITELAW, WISCONSIN

THROUGH the encouragement and under the guidance of the late Dr. J. R. Currans, the first county sanatorium in the state of Wisconsin opened its doors at Maple Crest in 1911. From time to time, space has been added so that its original twelve bed capacity has been increased to accommodate fifty-six patients. Consultation is through the Wisconsin Anti-Tuberculosis Association whose representative meets once a month with the staff which is composed of Dr. John M. Kelly, medical director since the opening of the institution, Dr. A. P. Zlatnik, surgeon, and Dr. H. J. Belson, Ear, Eye, Nose, and Throat specialist.

Maple Crest Sanatorium is equipped to do routine laboratory work including x-ray and fluoroscopic examinations; guinea pig inoculations and serological tests are done at the State Laboratory at Madison. Pneumothorax treatments, extrapleural refills, and minor surgery are done in the institution. Patients requiring further thoracic surgery are transferred to The State of Wisconsin General Hospital, Madison, in the sanatorium car which is equipped with a stretcher to facilitate moving sick patients.

The sanatorium is owned and operated by Manitowoc County and subsidized by the State of Wisconsin.



LAKE VIEW SANATORIUM

MADISON, WISCONSIN

THE construction of Lake View Sanatorium, the tuberculosis hospital of Dane County, Wisconsin, was completed by June 1, 1930, and the institution was opened at that time with a capacity of one hundred patients. An adequate operating room, light treatment rooms, laboratories, examining offices, and consultation rooms were provided, as well as an excellent x-ray outfit. Ample quarters for an occupational therapy department, with equipment for the same, and a large assembly and recreation room were also included.

The construction consisted chiefly of single or private rooms on four floors, each room opening on a porch facing the outlook over Lake Mendota, the city, and the University. Doors sufficiently wide to permit the passage of a bed joined the rooms with these porches. A few years later a dormitory for all employed in the Sanatorium was erected. This included a residence for the medical superintendent, a floor for the housing of nurses, another floor for female help, and a partial ground floor for male help. By releasing space in the hospital building, this increased the capacity of the Sanatorium to one hundred forty beds.

The outpatient department of the Sanatorium is featured very strongly. The medical staff gives a large proportion of its attention to the care of outpatients, and a comprehensive follow-up system is maintained for ex-patients. Clinics for the examination of patients are conducted within the Sanatorium five times a week.

Dr. W. C. Reineking is superintendent and medical director.

Wisconsin Sanatoria

MT. WASHINGTON SANATORIUM

EAU CLAIRE, WISCONSIN

IN 1912 a committee of three club women was appointed by the Eau Claire Anti-Tuberculosis Association to go before the county board and ask for an appropriation to build a sanatorium.

The Committee decided to raise funds for the site. This was done and the county board appropriated $16,000.00 to build the sanatorium on the south slope of Mt. Washington overlooking the beautiful Chippewa River Valley. The furniture and equipment were supplied by local fraternal groups and the institution opened on December 15, 1913, with a capacity of 24 patients. Remodeling brought the total capacity up to 58.

During 1935 a movement was started to build a new completely fireproof sanatorium of 90 beds which would give adequate space for x-ray, medical and surgical service. The project was approved by the P.W.A. and the structure was completed in February 1938.

On February 16, 1938 the patients from the first floor of the old building were moved into the new building and the patients from the second floor were moved on February 18, 1938.

Complete x-ray, laboratory, occupational therapy and W. A. T. A. Consultation Service are furnished. Pneumothorax is done at the sanatorium.

After a complete renovation of the old building it is now the Superintendent's, Nurses' and Maids' living quarters.

Dr. George W. Beebe is Medical Director and Miss Margaret Everson, R.N., is Superintendent.

RIVERVIEW SANATORIUM

KAUKAUNA, WISCONSIN

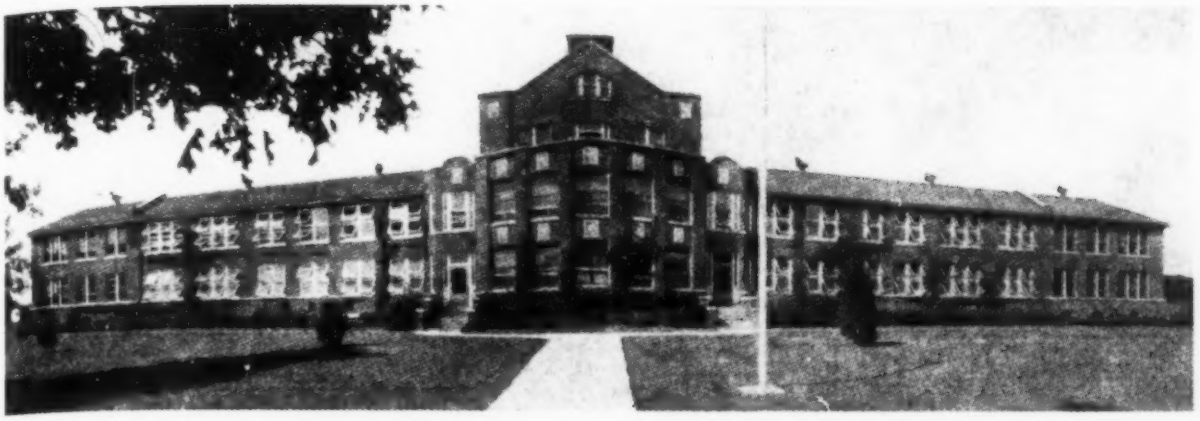
RIVERVIEW Sanatorium, an Outagamie County institution for the care of the tuberculous, was established and opened to receive patients on January 1, 1914.

The Sanatorium is located on the north bank of the Fox River within the village limits of Little Chute and midway between Appleton and Kaukauna. The site is well chosen, being protected from the north by a wooded range of hills, with a most pleasing southern outlook over the scenic Fox River.

Riverview was originally constructed for the care of sixteen patients. It soon became necessary to enlarge the capacity to thirty-two. In 1930, a new fireproof building was constructed, with all modern equipment, enlarging the capacity to sixty-five.

Dr. C. D. Boyd is superintendent and medical director.

Wisconsin Sanatoria

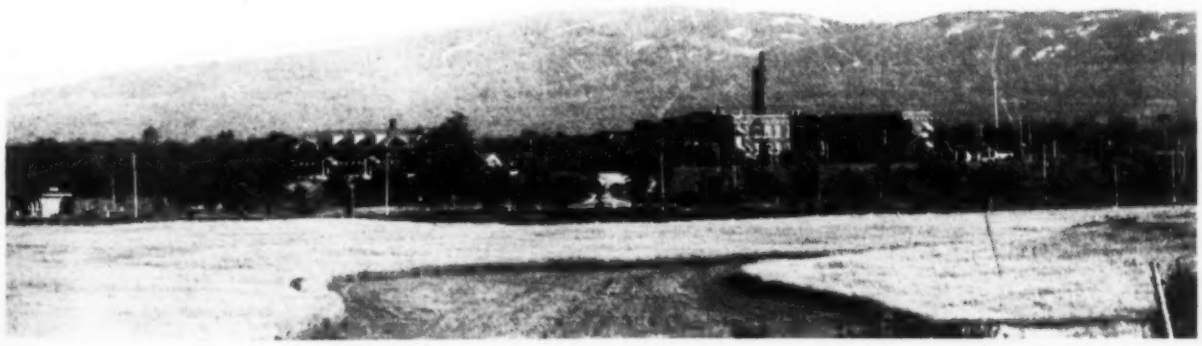


OAK FOREST SANATORIUM

ONALASKA, WISCONSIN

OAK FOREST Sanatorium of La Crosse County, located on a 63 acre tract to the south of the city of Onalaska, approximately six miles from the main business district of the city of La Crosse, was completed in 1918 as a 40 bed institution with the usual equipment for a county sanatorium. Additions and remodeling have taken place until now it is a 75 bed institution, with special facilities for medical care and nursing attention. It admits patients from many counties and is an institution for the treatment of those who need hospital care and carefully supervised Sanatorium treatment. Advanced, as well as early cases of tuberculosis, are admitted.

Doctor George D. Reay is the Medical Director at present.



MOUNT VIEW SANATORIUM

WAUSAU, WISCONSIN

MOUNT VIEW Sanatorium, located five miles Northwest of Wausau, was opened April, 1917. The capacity at that time was forty beds. All types and stages of tuberculosis from Marathon County and other counties were treated.

Miss Mary Hughes, R.N., is Superintendent, and Dr. E. M. Macaulay is visiting physician. During the years 1927 and 1928 the home for the employees was built, which increased the capacity of the Sanatorium to sixty-six beds.

Dr. Leonard Wahl has been added to the Sanatorium staff as the visiting dentist, and Dr. H. H. Christensen has been appointed the Sanatorium surgeon. All major surgery is done at the local hospital.

Wisconsin Sanatoria

VETERANS' ADMINISTRATION

WOOD, WISCONSIN

CONSTRUCTION of the hospital for the treatment of tuberculous veterans at the Veterans' Administration, Wood (near Milwaukee) Wisconsin, was begun in December, 1921 and was opened for service on May 14, 1923. Funds for same had been alloted the National Home for Disabled Volunteer Soldiers, by the White Committee from the appropriation of the second Langley Bill. The cost of the Hospital and adjunct service to it was approximately one and a quarter million dollars.

In planning the hospital, members of the White Committee had visited all the outstanding sanatoria for tuberculosis throughout the United States, and from this group a composite plan was made incorporating the best and outstanding features. At the time it was opened for service, it was said to be the outstanding tuberculosis hospital in the world.

Originally the hospital was planned to take care of 561 patients. From the photograph it will be noted that the Administration section, dining room and kitchen, are in the center of the group, flanked by four wings, two on each side, of two story construction. Cure porches extend all around the wings, and on the inside are heated dressing rooms. Large, splendidly lighted and splendidly furnished solaria are at each end of each ward. Each ward accommodates fifty patients. At either end of the group, and not shown in the picture, are two story ambulant wards, accomodating forty-eight patients. These have a sleeping porch and inner room for each patient.

The peak load of treatment in this hospital occurred in 1925, and from then on there was a rapid decline in load, until in 1928 only half of the group was in use. The unused half was then converted into a general hospital unit caring for 450 patients, and a modern surgical unit was installed. Recently the ambulant building at the west was remodelled and an additional wing of 200 bed capacity was added to this already large group. The group as it now stands is nearly three blocks long. The present capacity for tuberculous patients is 200 beds.

PUREAIR SANATORIUM

BAYFIELD, WISCONSIN

PUREAIR Sanatorium is owned and operated by Ashland, Bayfield, and Iron Counties. Is located on Chequamegon Bay of Lake Superior, two miles south of Bayfield.

Pureair officially opened July 12, 1920, with accommodations for thirty-six patients; in March, 1923, a new addition was added, giving beds to seventy patients, thirty-eight female, and thirty-two male.

All buildings face the lake and are surrounded by a pine and white birch forest.

The sanatorium is fully equipped for the diagnosis and treatment of pulmonary tuberculosis, except major surgery, and has an outpatient department for diagnosis and pneumothorax.

Dr. John K. Shumate is the superintendent and medical director.

Wisconsin Sanatoria

LAKE TOMAHAWK STATE CAMP

LAKE TOMAHAWK, WISCONSIN

THIS first institution of its kind in the United States was established on a 535 acre lot in the beautiful northern woods and lake region of Wisconsin in 1915. Its primary purpose is to provide rehabilitational and educational facilities for convalescent tuberculous men. It has a capacity of 42 beds. The patients are housed in two dormitories. The refectory building contains the dining hall, kitchen, storerooms, and laundry. The other structures include the administration building, with living quarters for the superintendent; a two-story industrial building with a machine shop, pipe and tin shop, blacksmith, woodworking and paint shop on the ground floor; a saw mill; power plant and an assembly hall that seats 100 persons. The farm includes 200 acres of arable land.

In physical rehabilitation the aim is to restore muscular functions of each individual by small tasks for a short period of time. It may vary from fifteen to sixty minutes each day, depending on the severity of the tuberculosis involvement and the recommendation set forth by the superintendent or physician referring the case. These tasks are aimed to coincide with the previous labor experience of each individual, or with the type of occupation which he wishes to follow in his future life. Such labor activities are increased from time to time by small progressive steps. The maximum working capacity is reached when the patient has built up to his own individual tolerance. The bi-monthly chest examinations are supplemented with monthly sputum tests (more frequent if necessary) and periodic x-rays. At the examination, a study is made of the labor activities, the chest findings, x-rays, and physical symptoms, and recommendations are then made by the physician for the following bi-monthly period.

As the individuals of this institution represent a cross-section of the State's activities, the Camp, in a very small way, is developed so that these work activities are incorporated. They are divided into the following divisions:

AGRICULTURE — INDUSTRY — CONSTRUCTION — TRANSPORTATION —

Over 800 patients have passed through this institution, most of them since 1928 when the bed capacity was doubled. For the most of the discharged patients, recovery was uneventful. They were returned to their communities and have taken their places in life, which is as it should be.

Mr. Frank A. Reich has been the superintendent since the opening of the camp.

SUNNY VIEW SANATORIUM

WINNEBAGO, WISCONSIN

THIS institution of 96 bed capacity is owned by Winnebago and Fond de Lac Counties. There are accommodations for 79 adult patients and 17 children. The sanatorium has a modern x-ray department and is well equipped for pneumothorax treatment. Its occupational therapy service offers adequate care to convalescent patients.

The work of the sanatorium is in complete harmony with the anti-tuberculosis campaign of the respective county medical societies under the capable direction of Miss Cava Wilson, R.N., superintendent.

Paralysis of the Diaphragm in the Treatment of Pulmonary Tuberculosis

FORRESTER RAINE, M.D., F.A.C.S.*
Milwaukee, Wisconsin

PARALYSIS of the hemi-diaphragm is a valuable aid in the treatment of pulmonary tuberculosis and can become more valuable if its indications are more fully understood and its contra-indications more generally recognized. Paralysis of one side of the diaphragm imitates nature's attempt to splint lung and pleura, which occurs in virtually all acute infections and injuries close enough to the pleura to bring on this natural response. By elevation and immobility of the diaphragm, dissemination of both bacteria and toxins is diminished since movements of the lung are materially restricted and excursions go through only the mean between extreme inflation and extreme deflation. Circulation to the lung and pleura by the bronchial artery is not appreciably altered by paralysis of the diaphragm, since this artery is part of the systemic circulation and is controlled by vasomotor impulses. Circulation through the pulmonary artery, however, is materially influenced by the size of the lung itself and all pertinent experiments indicate that the circulation through the pulmonary capillaries is optimal and that the load on the heart is minimal when the lung is midway between extreme inflation and extreme deflation. The use of diaphragmatic paralysis as a therapeutic aid must rest upon the advantages that can be obtained through producing these effects upon the lung and its circulation.

Pulmonary tuberculosis is considered a chronic infectious disease and this is true since most individuals have at least a moderate degree of resistance against it. Furthermore, the viability of the tubercle bacillus exceeds its virulence, so that it can be controlled and held dormant, but is hard to completely destroy. Certain stages of the disease, usually seen in individuals whose resistance is low, resemble in morbid anatomy and clinical course at least a subacute infection. In this phase of the disease, which has been called exudative and which shows on the x-ray as a soft infiltrative process, prevention of dissemination should be a major aim of therapy, and this prevention of dissemination can be more effectively accomplished through paralysis of the hemi-diaphragm than by any other means. If the process is extensive and destruction of lung tissue is occuring, additional collapse may be desirable and can be obtained by the addition of pneumothorax to diaphragmatic paralysis.

When destruction of large amounts of lung has occured leaving cavities lined by varying amounts of fibrous tissue, the actual destructive process of the tubercle bacillus has been fairly well controlled by the resistance and defense of the individual. But we commonly see, besides these apical cavities in which healing is impeded through lack of collapse, a more acute process with soft infiltration occuring in other parts of this lung. In such individuals, temporary paralysis of this diaphragm may restrict dissemination and through relaxation aid the defense of blood and tissue cells sufficiently to quiet the new invasion and thus make possible subsequent collapse of the open cavities by means of thoracoplasty.

The increasing use of pneumoperitoneum as a method of collapse in individuals in whom pneumothorax cannot be accomplished has opened up a new field for the use of diaphragmatic paralysis. The increased collapse afforded by diaphragmatic paralysis on the involved side commonly gives a degree of collapse with pneumoperitoneum that is hardly believable. It is certainly safe to say that the addition of diaphragmatic paralysis doubles the effective collapse possible with pneumoperitoneum.

Tuberculous pleurisy with effusion, rather commonly seen before one can demonstrate either through physical signs or by x-rays an actual parenchymal lesion, should upon theoretical grounds be benefited by diaphragmatic paralysis. Dissemination should

* Attending Surgeon, Muirdale Sanatorium; Assistant Professor of Surgery, Marquette University.

be restricted and through diminished motion the powers of the defense of the individuals enhanced so that healing of the tuberculous process proceeds more rapidly and with more certainty than it would were nature's limited restriction of diaphragmatic motion relied upon entirely. Our experience at Muirdale, though difficult to prove statistically, leads us to believe that routine temporary paralysis of the diaphragm on the side of early tuberculous pleurisy with effusion has induced more rapid disappearance of the effusion, and more complete destruction of the tuberculous process, since virtually none of these individuals have subsequently been admitted with demonstrable parenchymal involvement.

A combination of pneumothorax and paralysis of the diaphragm is not used as frequently as it should, for certainly there are many individuals who would be benefitted, not only by collapse but by further restriction in motion of their diseased side. Not only is this true in the earlier and more exudative phase of the disease, but later when collapse is primarily being used to close cavities. Frequently the diminution in size of the chest cavity will convert an unsatisfactory pneumothorax, due to adhesions, into a satisfactory one with closure of cavities and conversion of sputum. In spite of the increasing use of intra-pleural pneumonolysis, many cases of unsatisfactory pneumothoraces occur in whom intra-pleural pneumonolysis is too dangerous or impossible and a reasonable number of these can be made satisfactory by the addition of diaphragmatic paralysis.

Contra-indications to the use of diaphragmatic paralysis are evident if one keeps in mind the things that can be accomplished, by elevation and immobility. Closure of large thick walled cavities can almost never be accomplished by the relatively slight collapse of the lung occuring with even excellent elevation of the diaphragm. Furthermore, healing would be out of the question in the short time afforded by temporary paralysis, and permanent paralysis in the presence of open cavities, with an intact chest wall, is probably never good therapeutics.

Paralysis of the diaphragm in the treatment of pulmonary tuberculosis has fallen into disfavor, probably as much through its use when pneumothorax cannot but should be done as from any other single cause. The two procedures accomplish rather different alterations in the physiology of the lung and are by no means interchangeable in their indications. Pneumothorax primarily produces collapse with sometimes but little reduction in motion, while paralysis of the diaphragm primarily restricts motion with but little collapse. When pneumothorax is impossible, many individuals have had a paralysis of the diaphragm when any good hoped for was almost beyond the realm of reasonable expectation. When collapse is indicated and pneumothorax is impossible, some other type of collapse therapy should be tried, rather than expecting the impossible from paralysis of the diaphragm.

There are, I think, two indications for permanent paralysis of the hemi-diaphragm—the first of these is relatively rare, but occurs when fibrosis with healing has pulled heart and mediastinum to one or the other side, so that circulation is interfered with and tachycardia and pain result. Permanent paralysis in such a patient, when the lung is already healed, by relieving all circulatory embarrassment, will permit comfortable existence. The second indication for permanent paralysis is the reduction in size of the chest cavity, when collapse by pneumothorax has been continued until healing is complete, but re-expansion to the size of the normal chest would be dangerous and likely to put the healed scar under too great tension.

Summary

Paralysis of the hemi-diaphragm in its imitation of natural response reduces dissemination of both bacteria and toxins and aids in the resistance and defense of the individual against the more acute phases of tuberculosis. Diaphragmatic paralysis, supplementary to collapse by pneumothorax, will not only aid in the control of the more acute phases of the disease, but may permit closure of cavities in the more chronic and healing phase of the disease. Permanent paralysis of the diaphragm is seldom indicated and, in most instances, has been found to be a handicap to subsequent attempts to close cavities and leave an individual with adequate vital capacity for even reasonably active existence.

Intrathoracic Fluid

T. O. NUZUM, M.D.*
Janesville, Wisconsin

INTRATHORACIC fluid is a condition frequently encountered by physicians in general practice and, therefore, of general interest. Four types of fluid are commonly found within the pleural cavity: first, serous or serofibrinous non-inflammatory transudates, in which few or no cells are present, and in which the specific gravity is 1.015 or less; second, exudates in which many lymphocytic and polymorphonuclear cells in varying proportions are present and occasional red blood cells with a specific gravity of the fluid of about 1.015 or more; third, hemothorax, by which is meant an effusion of red blood cells into the pleural cavity rather than an inflammatory exudation; fourth, chylous fluid which is less commonly encountered in the pleural cavity.

Serous transudates are seen most commonly in chronic myocardial failure where it is most frequently encountered in the right pleural cavity, and in chronic nephritis, where it usually occurs in both pleural cavities, as is usually the case in pernicious anaemia, leukaemia, cachectic states, and in polyserositis. Unilateral serous effusions occur as the result of venous obstruction due to pulmonary carcinoma, enlarged mediastinal glands, aneurism, and cirrhosis of the liver[1].

Serous effusion is generally believed to be due in part to decrease in osmotic pressure within the capillary vessels resultant from decreased plasma protein and to increased intravenous pressure[2]. Diagnosis of serous effusions is relatively a simple matter as they lie free within the pleural cavity and may be demonstrated by physical and radiographic examination. Treatment is obviously directed toward the circulatory and excretory organs.

If the fluid results from trauma, it may be serous, sero-sanguineous, or frank blood, and it may become purulent. Because of pus formation, blood, excessive quantity, or rapid formation it may necessitate removal. Rapidly increased intrathoracic pressure to the point that venous blood return to the heart is interfered with may result in sudden death. Symptoms of increasing dyspnoea, cyanosis, shock, rapid weak pulse with a low mean blood pressure, and increased respiratory variation (blood pressure with low inspiratory systolic level) presage this event and necessitate immediate aspiration[3].

Insidious, spontaneous hemothorax makes one strongly suspicious of a malignant condition involving the pleura, or of tuberculosis. Detailed microscopic laboratory examination is then in order in an attempt to find tumor cells. However, early serosanguineous effusions are frequently due to streptococci, pneumococci, or tubercle bacilli, later becoming purulent if organisms are present in any considerable amount.

Purulent effusions are most frequently due to these organisms, rather infrequently to staphylococci, influenza bacilli, Friedlander's bacilli, and actinomycetes[4]. Laboratory indentification of the causal organisms indicate the type of treatment to be followed. Tubercle bacilli are stated generally to cause more than eighty per cent of all instances of spontaneous serous pleural effusion and to cause about ten per cent of all instances of purulent intrathoracic effusion. They may be occasionally found in smears, but more frequently they are found by examination of guinea pigs inoculated with the aspirated fluid. Microscopic and cultural methods of examination readily differentiate between pneumococcic and hemolytic streptococcic purulent effusions.

It has long been recognized by clinicians that thin pus is usually streptococcic in origin, that it develops early along with the associated streptococcic pneumonia, and that any open operative drainage in such cases is best deferred until the pus has become thick and creamy, when the concurrent pneumonic process will be largely resolved and the mediastinum will have become stiffened by pleural thickening and fixed by adhesions so that it can safely withstand treatment producing an open pneumothorax[5]. Pneumococcus pus, on the other hand, is known to be thick and creamy from the time of its inception and is formed late in the course of the pneumonic

* Pember-Nuzum Clinic, Inc.

disease, usually following its resolution, so that here early open operative treatment is indicated. Yet another form of streptococcus believed causal in pleural effusions is that seen in acute rheumatic fever, producing along with that disease a serofibrinous effusion.

The symptoms of purulent intrathoracic fluid may be of insidious onset with little or no appreciable pain or fever; or they may appear acutely with severe pleural pain and high fever, cough, dyspnoea and expectoration depending upon the presence of an underlying pneumonic process.

The physical findings vary with the size and location of the effusion, the associated pulmonary pathology and chronicity of that pathology. With small effusions physical findings may be absent. With larger effusions, there may be displacement of the heart toward the opposite side of the chest, splinting of the affected side of the chest with diminished respiratory excursion and with decreased motion of the affected diaphragm (demonstrable clinically by the absence of Litten's sign), paravertebral dullness of the contralateral side (Grocco's sign), and flattening or bulging of the intercostal spaces. There is then found impaired resonance or flatness to percussion over the involved area with decreased or absent tactile and vocal fremitus, or perhaps bronchial breath sounds in instances of underlying pulmonary consolidation or compression atelectasis. Immediately above this area of impaired resonance is one of hyper-resonance and increased vocal fremitus.

In older lesions, atrophy of the intercostal muscles and retraction of intercostal spaces is conspicuous. If there is marked increase in the intrathoracic pressure, the intercostal spaces may bulge and the spine exhibit scoliosis.

The pathology is that of the etiological agent concerned. In pneumococcus pneumonia, infection of the pleura most commonly is by way of the subpleural lymphatics from consolidated acini; in hemolytic streptococcus pneumonia, pleural infection occurs by way of the subpleural lymphatics from the peribronchial and interstitial pneumonia most commonly seen; occasionally perhaps pleural infection may result by blood stream metastasis from some focus of infection elsewhere in the body, and not infrequently by extension through the lymphatics of the diaphragm in instances of subphrenic abscess or liver abscess, or from mediastinal abscess originating perhaps from perforation of the oesophagus or bronchus, or from caries of the spine.

It is not generally appreciated that by means of a radiograph, particularly if combined with fluoroscopic examination, it is possible to diagnose and localize the presence of small or moderately large effusions within the pleural cavity which otherwise could not be recognized. We are not here concerned with massive effusions, as these are readily found by physical examination and confirmed by characteristic antero-posterior radiographs taken in the upright position; or with small effusions which are free within the thoracic cavity and readily demonstrable. We are rather concerned with small and encapsulated effusions which necessitate for demonstration variation in the posture of the patient until that position is found in which the beam of the x-ray is on a horizontal plane with the level of the encapsulated fluid. Thus one is enabled to visualize a sharply demarcated density against air-containing lung. This is best accomplished by fluoroscopic examination supplemented by the radiograph as a permanent record available for future study, the radiograph to be made with the patient in that position found most advantageous during the fluoroscopic examination.

Encapsulated pleural effusions occur most commonly along the axillary border, between the base of the lung and the diaphragm, and between the pulmonary lobes[6]. Laterally located effusions appear as sharply demarcated shadows with a convex inner margin directed medially and broadest toward the periphery. Collections of fluid between the diaphragm and the base of the lung on the right may simulate subphrenic disease; on the left side similar effusions are more readily differentiated by eliciting the presence of an air bubble within the stomach and thus determining the position of the diaphragm. It is important for the information of the surgeon to locate the lowest part of the encapsulated pocket in order that dependent drainage may be secured. Holmes and Ruggels suggest placing the patient on his side with the area to be radiographed uppermost and with the hips

elevated, thus allowing any air which may be present in the pocket to occupy and outline its basal portion. The x-ray beam here is to pass horizontally in antero-posterior diameter. Encapsulated effusions of the lateral or posterior thoracic wall often exhibit a characteristic "tear-drop" configuration. They may be observed by rotation of the patient behind the fluoroscopic screen to be peripherally located and lying externally to air-containing parenchyma. In straight antero-posterior radiographs posteriorly encapsulated fluid may appear to be located within the lung parenchyma, and is then liable to be mistaken for lung abscess (Figures 1 & 2).

Lamellar effusions are occasionally found and occur as a rather flat layer of fluid betweeen the chest wall and the lung, partially surrounding the lung. The shadow of the fluid is here seen to be crossed by the shadow of the ribs (Figure 2). Encapsulated interlobar effusions are readily overlooked in antero-posterior radiographs, and they are the most difficult of all types to localize. Interpretation of the observed opacities requires knowledge of the anatomical relationship between the interlobar fissures and the chest wall. Figure 3 illustrates the topographical relationship of the pulmonary lobes. The fissures between the upper and lower lobes begin at about the level of the fourth vertebral spine posteriorly and pass anteriorly along the course of the ribs to the level of the fifth intercostal space at the sternum. The fissure between the right upper and middle lobe lies at the level of the fourth rib anteriorly and passes horizontally toward the right axillary space bisecting the fissure between the right upper and lower lobes. These fissures communicate just above the level of the hilus as do the anterior and posterior portions of the thoracic cavity. A collection of fluid within the interlobar fissures casts a shadow which is characteristic in shape if the patient is examined beneath the fluoroscope in the manner indicated. These shadows appear as shown in Figure 4. They might be described as being shaped similarly to a cigar pointed at each end, or as a cigar with one end blunt, and in a third instance as a biconcave disc similar to the shape of a red blood corpuscle seen on edge. The shadow may be made to change shape by postural changes. These shadows are sharply defined and present a convex inferior margin with air-containing lung above and below.

Mediastinal effusions are recognized with difficulty, especially when they are located toward the base on the left side due to superimposition of the heart shadow. They characteristically appear as broad shadows with the base lying on the mediastinal shadow and extending out as a convex opacity toward the lateral chest wall. Thus, they may produce in the upper mediastinum a shadow covering the apical portion of the lung or in the lower mediastinum extending along the diaphragm toward the lateral thoracic wall. If the effusion is located in the right lower anterior mediastinum fluoroscopy in the lateral position will reveal the respiratory mobility of the anterior and medial portion of the right diaphragm to be limited and the anterior mediastinal pleuritic shadow superfically thickened[7]. Symptoms of mediastinal effusions are those of pressure involving the mediastinal structures producing hoarseness, dysphagia, engorgement of the thoracic veins, dyspnoea, substernal pain; cyanosis, paroxysmal cough, and symptoms of sepsis.

Lastly, it may be quoted from Rigler[8], who has extensively studied the motion of pleural fluids of all types, that transudates move freely with change in position of the thorax, as do most non-purulent exudates and recently formed purulent exudates. Purulent exudates with adhesions may not change position with posture of the patient. It is concluded by Rigler that postero-anterior radiographs made with the patient in the lateral decubitus position may reveal pleural fluid which is invisible in the usual upright radiograph; with change in position of the thorax, a shadow may appear characteristic of fluid in interlobar fissures, although entirely absent in the upright position; partial inversion of the patient may cause fluid to pass from the base of the lung to the apex, uncovering the previously invisible portion of the lung and obscuring the upper portion; the early diagnosis of small pleural effusions and the differentiation between pleural fluid and pleural thickening, and determination of the pathological changes in the base of the lung ordinarily impossible in the presence of

(Continued to page 62)

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(Continued from page 60)

a moderate effusion, is possible by radiographic examination made with the patient in a variety of positions.

The final diagnosis depends upon thoracentesis with removal of fluid for examination.

Bibliography

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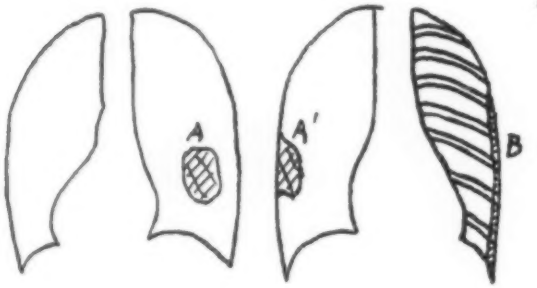

Figure I Figure II

Figure I.

A. Posteriorly encapsulated fluid in postero-anterior film.

Figure II.

A. Posteriorly encapsulated fluid visualized antero-posterior film to lie external to lung parenchyma.

B. Shadow of Lamellar effusion.

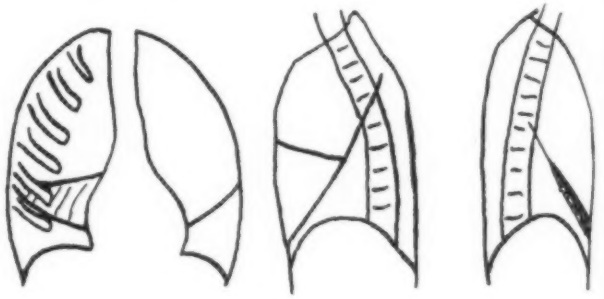

Figure III Figure IV

Figure III.

Antero-posterior and right anterior-oblique positions visualizing relationship of pulmonary lobes and interlobar fissures.

Figure IV.

Left anterior-oblique position visualizing cigar-shaped shadow characteristic of an interlobar effusion between upper and lower pulmonary lobes.

HOYT E. DEARHOLT, M.D. — *(Continued from page 47)*

by the association. So, too, with the chest clinic services of the Milwaukee Health Department, or the University of Wisconsin student tuberculosis detection service, now one of the most outstanding in the country. "Educate—then legislate": this, always, has been a fundamental tenet of the Association!

Dr. Dearholt's work was not confined to the W. A. T. A., however. In 1903 he was one of the founders of the *Wisconsin Medical Journal*, and until 1910 was its managing editor. From 1917 to 1918 he was president of the State Medical Society. He served terms also as president of the Milwaukee Academy of Medicine and the Medical Society of Milwaukee County. Nationally, he served as secretary and president of the Mississippi Valley Conference on Tuberculosis, and as a director of the National Tuberculosis Association.

But it was primarily as an educator that Dr. Dearholt liked to think of himself. For several years, before, during and after the war, he was chief of the Health Instruction Bureau of the University of Wisconsin Extension Division and contributed a weekly health column to Wisconsin papers. Pungent, understandable, and realistic, but always on a scientific plane, his lay and professional articles appeared in many publications and on many health subjects, particularly in the columns of *The Crusader*, monthly magazine of the W. A. T. A., of which he was editor from its founding in 1908. As a popular educator he coined such anti-tuberculosis slogans as "Let Your Doctor Decide" and "No Home Is Safe From Tuberculosis Until All Homes Are Safe." And as an educator, too, nothing was nearer to his heart than finding and training, by the apprenticeship method, capable young associates.

Faith in youth was, indeed, a mainspring of his character; primarily so, perhaps, because of the amazing youth and vitality which he was always able to bring to every interest of his own life. Those interests were wide and they were often unorthodox, but everywhere they were shot through with the clear-eyed curiosity of the scientist and a willingness to face facts, however disconcerting. Along with this youthfulness of mind and spirit were other qualities that made him loved and tremendously admired by the hundreds who knew him as "The Chief." These were a courtly graciousness of manner given freely to every person he met, a ruddy and genial good humor, a way of drawing himself into the background and heaping credit upon his subordinates and associates; and, above everything else, a sweetness of patience and oneness of passion which he gave to the vision of his youth—a Wisconsin free from tuberculosis.

Dr. Dearholt was born at Reedsburg, Wisconsin, on March 2, 1879. His parents early moved to Milwaukee, however, and here he grew up, married, and spent his life. He graduated from Rush Medical College in 1900 and did post-graduate work in New York and Vienna before entering practice in Milwaukee. He is survived by his widow, Mrs. Edith (Tweeden) Dearholt, and two children, John Winslow and Dorothy Mary, now Mrs. Timothy W. Goodrich of Bloomfield, Conn.